

CallPilot

Installation and Configuration

Part 5: 201i Server Maintenance and Diagnostics

Product release 1.07

Standard 1.0

October 2000



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Chapter 1

Before you begin

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Maintenance and diagnostics overview

Introduction

This guide provides information and instructions for maintaining the current functions of a CallPilot server, and for troubleshooting any problems that might arise.

Who should read this guide

This guide is for planners, administrators, technicians, and engineers responsible for maintaining a CallPilot server. It is intended to act as a guide for installing, repairing, replacing, and upgrading hardware and software components. It assumes that the reader has basic computing skills, is familiar with necessary safety procedures, and has the hardware documentation provided by the manufacturer available as a reference.

Assumptions

This guide assumes that you are planning to maintain or troubleshoot an existing CallPilot server.

Types of maintenance and diagnostic activities

The maintenance and diagnostic activities discussed in this guide are divided into three groups of activities:

- troubleshooting and diagnostics (identifying the cause of and resolving system problems)
- performing hardware maintenance
- expanding or rebuilding your system

Resolving system problems

Two sources of documentation are available for resolving system problems:

- this guide
- *CallPilot Troubleshooting Reference*

Using the *CallPilot Troubleshooting Reference*

The *CallPilot Troubleshooting Reference* describes symptoms that can appear on all CallPilot server platforms, and describes ways to resolve them. This document is continually being updated by Nortel Networks and is made available on the Nortel Networks Partner Business Center web site at <http://www.nortelnetworks.com/partnercenter>.

Note: If you are not a distributor, then contact your Nortel Networks technical support representative for assistance.

Use the *CallPilot Troubleshooting Reference* to resolve the following types of problems:

- 201i server boot cycle failures
- peripheral device problems
- monitor display problems
- server to network connection problems
- remote access connection problems
- CallPilot application problems

Using this guide

This guide provides instructions for using the resources provided by your 201i system.

- LEDs and HEX display on the 201i server's faceplate (see "LED and HEX displays" on page 27 in Chapter 2)
- bootup sequence and diagnostic codes (see "Bootup diagnostics" on page 35 in Chapter 2)
- log files (see "Viewing installation and configuration log files" on page 49 in Chapter 2)
- Windows NT 4.0 diagnostics and Event Viewer (see "Checking hardware using Windows NT 4.0 diagnostics" on page 53 in Chapter 2)
- TCP/IP diagnostics (see "Invoking and interpreting TCP/IP diagnostics" on page 56 in Chapter 2)
- Event Browser, Alarm Monitor, and Maintenance window in the CallPilot server software (see Chapter 3, "Using the administrative PC to diagnose the server")
- the following CallPilot system utilities:
 - Diagnostics Tool
 - PEP Maintenance utility
 - Services Monitor
 - Session Trace tool
 - System Information tool
 - System Monitor

For more information, see Chapter 4, "Using CallPilot system utilities."

Performing hardware maintenance

Chapter 5, “Performing hardware maintenance and mechanical assembly,” explains how to shut down the server, and then remove it from the switch in preparation for replacing one or more of the following hardware components:

- MPC-8 cards
- software feature key (dongle)
- hard drive

This chapter also explains how to replace your 201i server in the event of complete system failure.

Expanding or rebuilding your system

When you purchased your 201i server, it came preinstalled with the Windows NT operating system and CallPilot server software.

You might need to expand its functionality or, if your 201i server no longer functions because of corrupted software, you might need to reinstall the CallPilot software or rebuild the system from scratch.

The following table identifies where to find information for the task you need:

Task	For more information, see
Expand your system by adding features or configuring additional channels to CallPilot.	Chapter 6, “Expanding CallPilot features.”
Note: CallPilot does not support feature reduction other than for channels that have been previously allocated.	
Reinstall the CallPilot server software. If the hard drive is functioning but the CallPilot software appears to be corrupted, you can reinstall the CallPilot server software. This might correct the problem.	“Recovering from corrupted software (hard drive is functioning)” on page 140 in Chapter 7.
Rebuild the system. Perform a system rebuild when you need to recover from a hard drive failure. This involves the following tasks:	Chapter 8, “Installing the operating system and server software.”
<ol style="list-style-type: none"> 1 Boot to ROM-DOS and reformat the hard drive. 2 Install Windows NT Server 4.0. 3 Install Windows NT service packs. 4 Install pcANYWHERE32. 5 Install CallPilot server software. 6 Install Performance Enhancement Packages (PEPs). 	

Task	For more information, see
Uninstall the CallPilot server software. Uninstallation of CallPilot removes the software completely from the server. It also removes all CallPilot registry entries, linguistic information, and all links to CallPilot from the server database.	Chapter 9, “Uninstalling CallPilot server software.”

Preparing for maintenance activities

Before you begin any maintenance activities, collect all the tools you need, and follow all recommended safety precautions.

This chapter discusses the tools and equipment required for performing maintenance procedures in the field. Recommended safety precautions for electrostatic discharge, handling cards, and handling your server are also included.

Required tools and materials

Introduction

This section identifies the tools and materials you might need in addition to the approved replacement parts.

Tools and materials

Use this checklist for the tools and materials you might need to use to perform maintenance tasks.

Check	Description
<input type="checkbox"/>	Antistatic ESD wrist strap (recommended)
<input type="checkbox"/>	Two Phillips cross-head screwdrivers (No. 1 and No. 2)
<input type="checkbox"/>	Standard slot-head screwdriver (1/4" and 1/2")
<input type="checkbox"/>	Sidecutters
<input type="checkbox"/>	Jumper removal tool or needle-nosed pliers
<input type="checkbox"/>	Tweezers
<input type="checkbox"/>	Tape measure for determining cable lengths
<input type="checkbox"/>	Pen for writing notes, cable lengths, and cable identifications
<input type="checkbox"/>	Cable tie wraps
<input type="checkbox"/>	Cable identification labels
<input type="checkbox"/>	Equipment log This is used to record the model and serial number of the system, all installed options, and other information.
<input type="checkbox"/>	Null modem serial cable (it can be useful for troubleshooting)
<input type="checkbox"/>	Laptop computer and CD-ROM drive (to read documentation on CD-ROM and to connect to the network on which the server is located for troubleshooting)

Approved replacement parts

Before replacing any parts on your server, refer to the Enterprise Product catalog for the part codes.



CAUTION

Risk of system damage

The use of non-approved replacement parts can cause serious system problems or void your Nortel Networks warranty.

General safety

Introduction

When installing, replacing, or upgrading any system parts, follow Nortel Networks safety guidelines to prevent personal injury and damage to the server or replacement parts.



WARNING

Risk of personal injury and equipment damage

Field maintenance must always be performed by fully qualified, trained personnel.

Precautionary messages

This guide provides warnings when risks related to hardware installation and handling are known. Do not ignore these warnings.

Note: For a description of the potential impact that the warnings in this guide might have if they are ignored, see “Symbols and conventions” in Part 1 of this binder.

General precautions

Nortel Networks recommends the following safety guidelines for performing installation and maintenance procedures:

- Plug the peripheral devices only into properly grounded power sources to prevent electric shock.
- Use a surge protector or uninterruptible power supply to protect your system from sudden increases and decreases in electrical power.
- Ensure that nothing rests on peripheral cables, and that you cannot trip over or step on cables.
- Do not push any foreign objects into any server opening.
- When handling components, protect the server from electrostatic discharge by wearing an antistatic wrist strap attached to any unpainted metal surface on the switch.

Avoiding electrostatic discharge

Introduction

Electrostatic discharge (ESD) can seriously damage component parts such as boards, disk drives, and other parts.

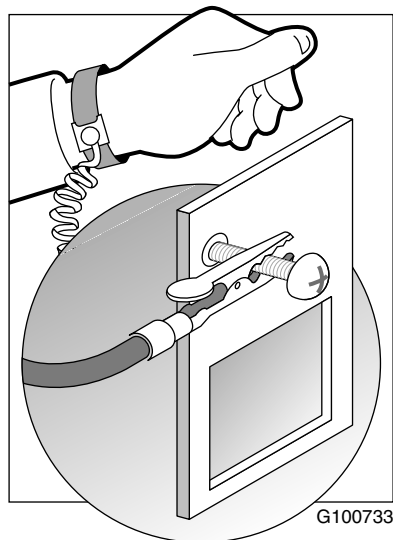
ATTENTION

Nortel Networks recommends performing all hardware installation and maintenance procedures at an ESD workstation whenever possible.

Antistatic wrist strap

If an ESD workstation is not available, provide some ESD protection by wearing an antistatic wrist strap. Ground the ESD wrist strap by attaching it to any unpainted metal surface on the switch.

The following diagram shows the lead from the ESD wrist strap clipped to an exposed screw on a chassis.



To discharge static

When working with server components, periodically touch a nearby unpainted metal surface to discharge any accumulated static.

Precautions for handling components

These precautions are recommended for any procedure that includes handling component boards:

- After removing a board from its protective wrapper or from the server, place the board component-side up on a conductive foam pad.
If possible, use antistatic floor pads and workbench pads as well.
- Do not slide a board over any surface.
- Do not touch board components or gold-edge connectors on the board.
- Hold a board by the top edge or by the side edges.

Handling hard drives

Introduction

Hard drives are extremely sensitive to vibration and physical shock. To protect equipment and prolong the useful life of hard drives, Nortel Networks recommends the following precautions.

Avoid vibration or physical shock

Hard drives are susceptible to even slight vibrations. A hard drive can be damaged if it is placed on a table that is accidentally knocked or moved. Use caution when handling hard drives to prevent damage.

Handle hard drives with care

After removing a hard drive from its protective wrapper or from the server, place it on an antistatic, padded workbench or workstation to avoid movement or jarring.

Check for shipping damage

If a replacement hard drive is shipped alone as an upgrade or replacement, note any dents or damage on the container and packaging. Keep the container as proof that the part was damaged during shipping and handling.

Precautions when removing the hard drive

Before you can remove the hard drive, you must perform a proper system shutdown, and then remove the 201i server from the switch. For detailed instructions, see Chapter 5, “Performing hardware maintenance and mechanical assembly.”

Store hard drives carefully

Store hard drives in padded containers. Store the packaged drives away from places where they can be moved, jarred, or damaged by the environment.

Handling CD-ROMs

Introduction

When removing a CD-ROM from its protective case or loading it to a drive, hold it by its center hole and outer edge. Avoid touching the CD-ROM's data surface (the non-labeled side).

To protect the CD-ROM against scratches and dirt when not in use, keep it in its protective case.

To load a CD-ROM

- 1 Press the eject button on the CD-ROM drive to eject the disk tray.
- 2 Place the CD-ROM on the tray with its labeled side facing up.
- 3 Press the eject button or gently press the front of the disk tray to retract the tray back into the drive.

To eject a CD-ROM

- 1 Press the eject button on the CD-ROM drive to eject the disk tray.
- 2 Remove the CD-ROM from the tray and put it in its protective case.
- 3 Press the eject button or gently press the front of the disk tray to retract the tray back into the drive.

Chapter 2

Troubleshooting your CallPilot system

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Overview

Introduction

This section provides a brief description of the tools you can use to determine the cause of system problems, and then resolve them.

Resolving system problems

Two sources of documentation are available for resolving system problems:

- this guide
- *CallPilot Troubleshooting Reference*

Using the *CallPilot Troubleshooting Reference*

The *CallPilot Troubleshooting Reference* describes symptoms that can appear on all CallPilot server platforms, and describes ways to resolve them. This document is continually being updated by Nortel Networks and is made available on the Nortel Networks Partner Business Center web site at <http://www.nortelnetworks.com/partnercenter>.

Note: If you are not a distributor, then contact your Nortel Networks technical support representative for assistance.

Use this document to resolve the following types of problems:

- 201i server boot cycle failures
- peripheral device problems
- monitor display problems
- server to network connection problems
- remote access connection problems
- CallPilot application problems

Using this guide

This guide provides instructions for using the resources provided by your 201i system.

LEDs and HEX display on the 201i server's faceplate

The LEDs indicate when

- the 201i server, MPC-8 card, or SCSI drive are in use
- it is safe to remove the server from the switch, or the MPC-8 card from the server

- network activity is occurring

The HEX display displays messages that appear during bootup or normal 201i server operation.

For more information, see “LED and HEX displays” on page 27.

Bootup sequence and diagnostic codes

To help you determine if the 201i server booted successfully (or if it failed), watch the bootup sequence and the diagnostic codes that appear. The entire sequence occurs when you do one of the following:

- Lock 201i into position on the IPE shelf or Option 11 and the 201i begins receiving power.
- Restart Windows NT.
- Press the 201i faceplate reset button to perform a hardware restart.

For more information, see “Bootup diagnostics” on page 35.

Log files

The installation event log tracks events associated with any install, reinstall, upgrade, or uninstallation operation. The log also tracks any fatal errors that interrupt these operations.

The Configuration Wizard log file is a record of the information entered through the CallPilot Configuration Wizard.

For more information, see “Viewing installation and configuration log files” on page 49.

Windows NT 4.0 diagnostics and Event Viewer

The Windows NT 4.0 Diagnostics window allows you to view details concerning the system and network components.

The Event Viewer provides access to three logs (system, security, and application), which you can use to diagnose and debug system problems.

For more information, see “Checking hardware using Windows NT 4.0 diagnostics” on page 53.

TCP/IP diagnostics

The following diagnostic tools help you verify network connectivity and routing:

- ipconfig
- ping
- tracert

- arp
- nbtstat
- netstat

For more information, see “Invoking and interpreting TCP/IP diagnostics” on page 56.

Event Browser, Alarm Monitor, and Maintenance window in the CallPilot server software

An event is

- any change in system configuration or operational state
- any action taken by the system that requires user notification

An alarm is an event that notifies you of a potential or real problem.

For more information, see Chapter 3, “Using the administrative PC to diagnose the server.”

CallPilot system utilities

The Diagnostics utility allows you to enable and disable CallPilot startup diagnostics to run when the system boots. This tool saves time during system maintenance operations where restarts or Call Processing services restarts are required.

The PEP Maintenance utility displays a list of all installed PEPs on the server and enables you to uninstall PEPs.

The Services Monitor can help you determine whether the CallPilot server is fully operational. It displays true states of the CallPilot services according to Windows NT definition, including the states that are not available through the control panel.

The Session Trace tool provides detailed information about the activity in a user’s mailbox and the state of the message waiting indicator (MWI).

The System Information tool displays particulars about the CallPilot system, such as names, keycodes, serial numbers, IP addresses, and system numbers.

The System Monitor provides a single point of view of CallPilot call processing status at any time. The status provided reflects the true internal status of the Call Processing subsystem, including all related call processing components. This eliminates the need to use multiple tools to get the same information.

For more information, see Chapter 4, “Using CallPilot system utilities.”

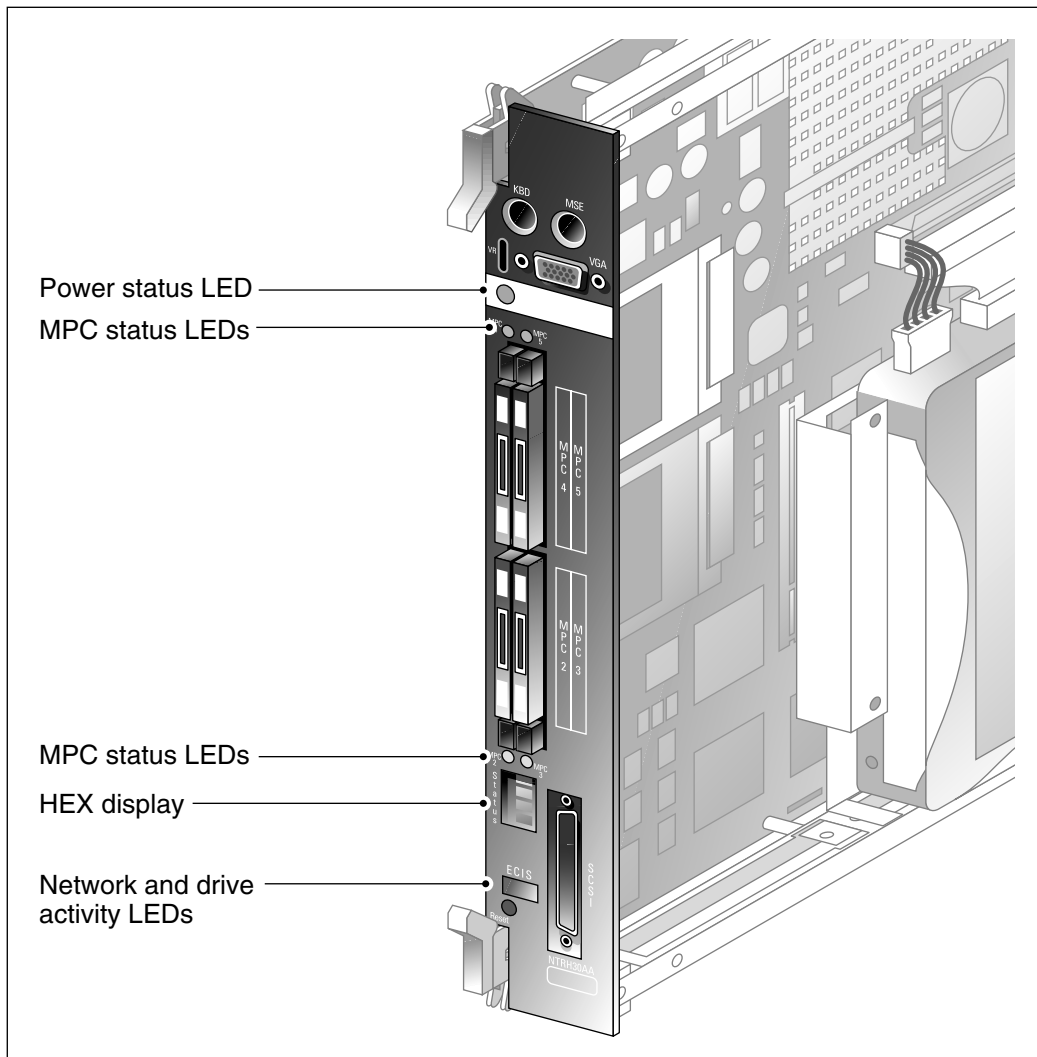
Section A: LED and HEX displays

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Location of the 201i status LEDs and HEX display

The following diagram shows the location of the status LEDs and HEX display on the 201i server faceplate:



G101439

Interpreting the power status LED

Introduction

The power status LED is located on the faceplate of the 201i server, directly under the keyboard connector. The LED indicates whether it is safe to remove the server from the switch (which results in a server power down).

After the 201i server has been inserted into the switch and is powered up, it can be safely removed (powered down) only at certain times.



CAUTION

Risk of equipment damage or data loss

Do not remove the 201i server during normal operation or certain phases of the boot sequence as this can damage the operating system files on the hard disk.

Power status LED functions

The LED indicates two server states:

- The 201i server is in use.
- It is safe to remove the 201i server from the switch.

Power status LED indications

IF the power status LED is THEN

on	<p>the server is powered on. <i>It is</i> safe to remove it from the switch.</p> <p>Note: When the LED is lit, the HEX display might display one of the following: T:XX, F:XX, HOST, or DOWN.</p>
off	<p><i>it is not</i> safe to remove the server from the switch. The server is in one of the following states:</p> <ul style="list-style-type: none"> ■ The server is in the Windows NT bootup sequence. ■ The server has completed the bootup sequence and is running.

Interpreting the MPC slot LEDs

Introduction

There is an LED for each MPC slot on the 201i server.

MPC slot LED functions

The LEDs indicate two possible MPC slot states:

- The MPC is in use.
- It is safe to remove the MPC from the server.

MPC slot LED indications

IF the MPC slot LED	THEN
is off	the MPC is not receiving power. It is safe to remove the MPC from the server.
is on	the MPC is in use. It is not safe to remove the MPC from the server.
was off, then came on	the MPC was recognized by the 201i software and subsequently powered up.
was on, then went off	the MPC was successfully powered down from the Maintenance window. It is safe to remove the MPC from the server.

Interpreting the network and drive activity LEDs

Introduction

The 201i server provides four LEDs to indicate ELAN, CLAN, SCSI device, and IDE hard drive activity. They are labeled as follows:

LED label	Description
E	ELAN
C	CLAN
I	IDE hard drive
S	SCSI device (CD-ROM or tape drive)

Network LED states

Refer to the following table when interpreting network status:

IF the E or C LEDs are	THEN
off	<p>a valid hardware connection with the network has not been established.</p> <p>Ensure that the cable is connected to the respective network hub. If the cable is connected, ensure that the cable is good.</p>
on	<p>a valid hardware connection with the network has been established.</p> <p>Note: Before the 201i server can receive or transmit data, you must configure valid IP settings on the 201i server.</p>
blinking rapidly	<p>activity is occurring on the network.</p> <p>Note: This does not mean that the 201i server is actually transmitting or receiving packets.</p>

IDE drive LED states

Refer to the following table when interpreting the IDE hard drive status:

IF the I LED is	THEN
off	the IDE hard drive is idle.
on	the IDE hard drive is being accessed.

SCSI device LED states

Refer to the following table when interpreting the external SCSI device status:

IF the S LED is	THEN
off	the SCSI device is idle, or the driver is not loaded.
blinking	the SCSI device is being accessed.
lit solid	the software driver has loaded but the SCSI device is not connected.

Interpreting the HEX display

Introduction

This section describes the codes that can appear on the HEX display during bootup or normal 201i server operation.

Note: For a description of the codes that appear during bootup diagnostics, see “Bootup diagnostic codes” on page 36. For a description of the bootup sequence, see “Bootup sequence description” on page 39.

HEX display codes

During bootup and normal 201i server operation, the HEX display on the server faceplate displays one of the following codes:

HEX display output	Description
Boot sequence codes	
T:XX	<p>The 8051 controller is booting up and running diagnostics. These diagnostics are performed during a cold reboot (when the server is powered up, or if you press the Reset button).</p> <p>For more details, see “Bootup diagnostic codes” on page 36.</p>
F:XX	<p>At least one diagnostic failed. The displayed error code represents the first failed diagnostic.</p> <p>For more details, see “Bootup diagnostic codes” on page 36.</p>
P:XX	<p>An Extended POST error has occurred, where XX represents a two-character code. If the error is a critical error, the boot cycle might halt. If the error is a non-critical error, the error code is logged in the Windows NT system event log after the operating system boot completes and the CallPilot 8051 device driver starts.</p> <p>ATTENTION</p> <p>POST Terminal errors that result in a system halt do not appear on the HEX display. If you are not able to use the HEX display to determine the cause of a system halt, contact your Nortel Networks technical support representative.</p>
HOST	<p>This appears during the bootup sequence and means that BIOS diagnostics have started.</p> <p>HOST also appears on the HEX display when the server has been booted to ROM-DOS.</p>
NT	The Windows NT boot sequence has started.

HEX display output	Description
OK	The operating system boot sequence was successful.
CallPilot and 201i server operation codes	
BOOT	CallPilot is booting and is not yet fully operational.
PASS	CallPilot is fully operational and ready to accept calls.
WARN	CallPilot is ready to accept calls. However, some services failed the boot sequence. Review the event log for further information.
FAIL	CallPilot failed the boot sequence and cannot accept calls. Review the event log for further information.
MIN	A minor alarm has occurred. Review the event log for further information.
MAJ	A major alarm has occurred. Review the event log for further information.
CRI	A critical alarm has occurred. Review the event log for further information.
???	An alarm of unknown severity occurred. This error should not occur on a properly installed system. The severity of this event is treated as higher-than-critical.
DOWN	<p>Windows NT has been shut down. When the power status LED is on, it is safe to remove the 201i server from the switch.</p> <p>If you perform a cold reset by pressing the reset button on the 201i server's faceplate, or by removing and then reinserting the 201i server in the switch, the boot sequence starts at stage 1, described on page 39.</p> <p>If you perform a warm restart by selecting Restart on the Windows NT shutdown menu, the boot sequence starts at stage 9, described on page 40. However, the HEX display behaves as follows:</p> <ul style="list-style-type: none"> ■ The DOWN message remains displayed until the Windows NT boot sequence starts. ■ The DOWN message does not scroll.

Note: If you observe “???” or anything else on the display, contact your Nortel Networks technical support representative.

Section B: Bootup diagnostics

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Bootup diagnostic codes

Introduction

HEX display diagnostic codes are divided into the following two categories:

- critical bootup diagnostics
- noncritical operating system and switch diagnostics

Critical bootup diagnostic codes

All critical bootup diagnostics must pass before the 201i can proceed with the bootup sequence. If a critical diagnostic fails, the bootup sequence indefinitely halts, an error code displays, and a continuous beep is heard.

The following table shows the critical bootup diagnostic codes with their corresponding failure codes. Failure of these diagnostics means that there has been a server failure. The boot cycle is halted.

Note: When a test is successfully completed, the next test code appears.

Test code	Test description	Failure code
T:01	Internal RAM self-test	F:01
T:02	ALU self-test	F:02
T:03	Address mode self-test	F:03
T:04	Boot ROM self-test	F:04
T:05	Timer self-test	F:05
T:06	Watchdog self-test	F:06
T:07	EEPROM self-test	F:07
T:08	End of system controller self-tests The power status LED blinks three times.	not applicable
HOST	Beginning of BIOS diagnostics The monitor displays the BIOS boot screen. If a critical error occurs, the boot cycle is halted. Examples of critical errors are memory failure or another type of error resulting in no display on the monitor.	HOST continues to scroll across the HEX display

Noncritical operating system and switch diagnostic codes

If a noncritical operating and switch diagnostic test fails, the HEX display stops at the failed test. Remaining diagnostics are not performed. The boot sequence continues, but server functionality can be compromised.

The following table shows the noncritical operating system and switch diagnostic codes with their corresponding failure codes.

Note: While the test is in progress, the following codes might appear for a short period. If these messages display temporarily (that is, no longer than one second), a problem does not exist.

Status code	Operation description	Failure code
HOST	Continuation of BIOS diagnostics The monitor displays the BIOS boot screen. If a noncritical error occurs, the server continues the boot sequence.	P:XX
NT	Windows NT boot sequence started Note: If the CallPilot server software is not installed, the HEX display remains at NT. (This can occur if you are performing a system rebuild.) During CallPilot software installation, the 8051 device driver is copied to Windows NT, at which point the HEX display continues as described below.	P:XX Note: For a description, see “P:XX failure codes” on page 38.
CDLN	8051 device driver on Windows NT has started; beginning of Cardlan interface communication (DS30 interface initialization) The system controller communicates with the switch, indicating that two cards are installed, and waits for switch acknowledgement.	CDLN Neither of the DS30 interfaces were initialized (both failed).
C:01	Initialization of the first DS30 interface	C:01 Initialization of the first DS30 interface failed. The second DS30 interface is OK.

Status code	Operation description	Failure code
C:02	Initialization of the second DS30 interface	C:02 Initialization of the second DS30 interface failed. The first DS30 interface is OK.
OK	Switch acknowledgement complete The Windows NT bootup is complete, and CallPilot Fault Management takes over.	CRI, FAIL, MAJ, MIN, or WARN

P:XX failure codes

P:XX indicates a BIOS diagnostic error, where XX represents a two-character code. If the error is a critical error, the boot cycle might halt. If the error is a noncritical error, the error code is reported in the Windows NT system event log after the operating system boot sequence completes and the CallPilot 8051 device driver starts.

Note: If CallPilot is not installed, no event is logged.

ATTENTION

POST Terminal errors that result in a system halt do not appear on the HEX display. If you are not able to use the HEX display to determine the cause of a system halt, contact your Nortel Networks technical support representative.

Bootup sequence description

Introduction

The following table describes the bootup sequence and the diagnostic stages that occur. The entire sequence occurs when you do one of the following:

- You lock the 201i into position on the IPE shelf or Option 11 and the 201i powers up.
- You press the reset button on the 201i faceplate to perform a hardware restart.

Note: If you restart Windows NT by clicking the Shut Down and Restart buttons, the boot sequence starts at stage 9. However, the HEX display behaves as follows:

- The DOWN message remains displayed until the Windows NT boot sequence starts.
- The DOWN message does not scroll.

Stage	Description	HEX display	Status LED
1	Internal RAM self-test This is the start of critical startup diagnostics for the 8051 system controller. If any of the tests fail, the bootup cycle is halted. Approximate duration: less than 1 second	T:01	ON
2	ALU self-test Approximate duration: less than 1 second	T:02	ON
3	Address mode self-test Approximate duration: less than 1 second	T:03	ON
4	Boot ROM self-test Approximate duration: less than 1 second	T:04	ON
5	Timer self-test Approximate duration: less than 1 second	T:05	ON
6	Watchdog self-test Approximate duration: less than 1 second	T:06	ON
7	EEPROM self-test This is a noncritical diagnostic. If it fails, this is a noncritical error, and the boot cycle continues. Approximate duration: less than 1 second	T:07	ON

Stage	Description	HEX display	Status LED
8	End of system controller self-tests. No errors were found. Approximate duration: less than 3 seconds	T:08	blinks three times
9	Beginning of BIOS diagnostics. Note: The BIOS splash screen appears and HOST scrolls across the HEX display. Approximate duration: 7 seconds	HOST	ON
10	Beginning of Windows NT boot sequence The monitor displays the Windows NT boot selection menu. Select one of the following: ----- 1 Windows NT 4.0 (Server (Default within 30 secs) 2 Windows NT 4.0 Server (VGA mode) 3 Load Previous Operating System on C: Choose an option[1,2,3]?1 A timer counts down from 30 seconds. If you do not press a key within 30 seconds, the boot menu times out and, by default, loads Windows NT. If you press a key, the timeout is disabled. Use the up and down arrow keys to select the boot option: Windows NT 4.0 Server or Windows NT 4.0 Server (VGA mode). Note: Use option 2 only if the monitor is not able to support resolution greater than 640 x 480 pixels. Option 3 is an option provided automatically with the Windows NT software. There is no need to use it with the 201i server.	NT	OFF

Stage	Description	HEX display	Status LED
10 (cont)	<p>The 201i server boots Windows NT. The monitor does the following:</p> <ul style="list-style-type: none"> ■ switches to blue screen and continues booting ■ outputs checkdisk information to make sure no sectors are corrupted ■ displays the Windows NT splash screen and logon prompt <p>Approximate duration of Windows NT boot sequence: 60 seconds</p>	NT	OFF
11	<p>Completion of operating system boot sequence. The 8051 system controller is running normally.</p>	OK	OFF
12	<p>The 201i CallPilot software loads.</p> <p>OK means that CallPilot has loaded. CallPilot Fault Management takes over.</p> <p>If FAIL, WARN, CRI, MAJ, or MIN appear instead of OK, a fault has occurred. Use the system and administration client event logs and Alarm Monitor to determine what happened.</p> <p>Approximate duration: 5 minutes</p>	<p>One of the following, as applicable:</p> <ul style="list-style-type: none"> ■ BOOT ■ PASS ■ FAIL ■ WARN ■ CRI ■ MAJ ■ MIN 	OFF

Section C: Troubleshooting bootup problems

In this section

What to do when the 201i server fails to boot into service	44
Viewing event logs	46

What to do when the 201i server fails to boot into service

Introduction

This section suggests tasks you can perform to determine why the 201i server fails the bootup cycle.

To determine why the 201i server failed to boot into 8051

- 1 Make a note of any diagnostic codes.
- 2 Try restarting the server by pressing the reset button on the 201i server faceplate.
- 3 During the boot sequence, view the diagnostic codes on the HEX display for failures.

For a description, see “Bootup sequence description” on page 39.

Note: Allow five minutes for the boot cycle to complete.

- 4 View the event logs.
For instructions, see page 46.
- 5 Refer to the *CallPilot Troubleshooting Reference* for other suggestions.
This document is continually being updated by Nortel Networks and is made available on the Nortel Networks Partner Business Center web site at <http://www.nortelnetworks.com/partnercenter>.
Note: If you are not a distributor, then contact your Nortel Networks technical support representative for assistance.
- 6 If you still cannot find the boot failure cause, call your Nortel Networks technical support representative.

To determine why the 201i server failed to boot into CallPilot

- 1 Make a note of any diagnostic codes.
- 2 Try restarting the server by pressing the reset button on the 201i server faceplate.
- 3 During the boot sequence, view the diagnostic codes on the HEX display for failures.

For a description, see “Bootup sequence description” on page 39.

Note: Allow five minutes for the boot cycle to complete.

- 4 Refer to the *CallPilot Troubleshooting Reference* for other suggestions.

This document is continually being updated by Nortel Networks and is made available on the Nortel Networks Partner Business Center web site at <http://www.nortelnetworks.com/partnercenter>.

Note: If you are not a distributor, then contact your Nortel Networks technical support representative for assistance.

- 5 If you still cannot find the boot failure cause, call your Nortel Networks technical support representative.

Viewing event logs

Introduction

When the 201i server boot cycle is complete, and if the CallPilot server has been configured (see Part 3 of this binder), the HEX display should show PASS.

If, however, the HEX display shows FAIL, CRI, MAJ, MIN, or FAIL instead, a fault has occurred. To determine what happened, you can use the following:

- Windows NT Event Viewer on the 201i server (see “To use the Windows NT Event Viewer on the 201i server” on page 47)
 - Event Browser or Alarm Monitor on the administrative client PC
- For more information, do one of the following:
- See “Using the Alarm Monitor, Event Browser, and Maintenance window” on page 67.
 - Refer to the *Monitoring and Security Guide for the Administrator*.

Note: The Event Browser and Alarm Monitor include online Help for events, which might help you resolve the problem. If you cannot log on to the CallPilot system from the administrative client PC due to server problems, use the Windows NT Event Viewer.

Types of event logs

Three types of event logs are available from the Event Viewer, as follows:

Log type	Description
System	Logs events by Windows NT 4.0 components, including RAS or other WinNT services.
Security	Logs security events, such as logons, logoffs, illegal access, and so on. This option is available only to users with Administrative access.
Applications	Logs events by application, such as database file errors, and so on.

To use the Windows NT Event Viewer on the 201i server

- 1 Click Start > Programs > Administrative Tools > Event Viewer.

Result: The Event Viewer window appears.



Date	Time	Source	Category	Event	User	Computer
6/5/00	6:18:34 PM	NetBT	None	4319	N/A	201IBOAI
6/5/00	6:18:03 PM	MASRV	(3)	42804	N/A	201IBOAI
6/5/00	6:17:09 PM	MASRV	(1)	42801	N/A	201IBOAI
6/5/00	6:15:49 PM	SNMP	None	1001	N/A	201IBOAI
6/5/00	6:14:44 PM	Serial	None	3	N/A	201IBOAI
6/5/00	6:14:44 PM	Serial	None	3	N/A	201IBOAI
6/5/00	6:14:39 PM	nb8051sd	None	33508	N/A	201IBOAI
6/5/00	6:14:35 PM	EventLog	None	6005	N/A	201IBOAI
6/5/00	6:14:35 PM	EventLog	None	6009	N/A	201IBOAI
6/5/00	6:14:38 PM	nb8051sd	None	33500	N/A	201IBOAI
6/5/00	6:13:11 PM	EventLog	None	6006	N/A	201IBOAI
6/5/00	5:45:01 PM	MASRV	(3)	42804	N/A	201IBOAI
6/5/00	5:42:51 PM	SNMP	None	1001	N/A	201IBOAI
6/5/00	5:36:31 PM	Serial	None	3	N/A	201IBOAI
6/5/00	5:36:31 PM	Serial	None	3	N/A	201IBOAI
6/5/00	5:36:26 PM	nb8051sd	None	33508	N/A	201IBOAI
6/5/00	5:36:22 PM	EventLog	None	6005	N/A	201IBOAI
6/5/00	5:36:22 PM	EventLog	None	6009	N/A	201IBOAI
6/5/00	5:36:25 PM	nb8051sd	None	33500	N/A	201IBOAI
6/5/00	5:34:46 PM	EventLog	None	6006	N/A	201IBOAI
6/5/00	5:27:30 PM	Service Control Mar	None	7000	N/A	201IBOAI
6/5/00	5:27:26 PM	qic117	None	119	N/A	201IBOAI



- 2 The System Log appears by default.

To view the Application Log, click Log > Application.

Result: The Application Log similar to the following window appears:

Date	Time	Source	Category	Event	User	Computer
6/9/00	1:10:49 PM	NGen	(2)	41886	N/A	201IBOAI
6/9/00	1:10:49 PM	NGen	(4)	40223	N/A	201IBOAI
6/9/00	1:04:41 PM	Perflib	None	1008	N/A	201IBOAI
6/9/00	1:04:41 PM	rasctrs	None	2001	N/A	201IBOAI
6/9/00	1:04:40 PM	CTMS Performance	None	0	N/A	201IBOAI
6/9/00	1:02:38 PM	NGen	(4)	41880	N/A	201IBOAI
6/9/00	1:02:37 PM	NGen	(4)	40222	N/A	201IBOAI
6/9/00	11:05:05 AM	NGen	(3)	41051	N/A	201IBOAI
6/9/00	10:18:20 AM	NGen	(4)	40806	N/A	201IBOAI
6/9/00	4:57:38 AM	NGen	(4)	41881	N/A	201IBOAI
6/9/00	4:57:00 AM	NGen	(4)	41880	N/A	201IBOAI
6/9/00	3:35:18 AM	NGen	(4)	55040	N/A	201IBOAI
6/9/00	3:30:26 AM	NGen	(4)	55039	N/A	201IBOAI
6/9/00	3:12:37 AM	NGen	(4)	40233	N/A	201IBOAI
6/9/00	3:06:46 AM	NGen	(4)	41082	N/A	201IBOAI
6/9/00	3:06:31 AM	NGen	(5)	40278	N/A	201IBOAI
6/9/00	3:04:40 AM	NGen	(4)	40576	N/A	201IBOAI
6/9/00	3:03:48 AM	NGen	(5)	57810	N/A	201IBOAI
6/9/00	3:03:39 AM	NGen	(5)	57810	N/A	201IBOAI
6/9/00	3:03:38 AM	NGen	(5)	57810	N/A	201IBOAI
6/9/00	3:03:38 AM	NGen	(5)	57810	N/A	201IBOAI
6/9/00	3:03:38 AM	NGen	(5)	57810	N/A	201IBOAI
6/9/00	3:03:31 AM	NGen	(5)	57810	N/A	201IBOAI
6/9/00	3:02:49 AM	NGen	(5)	57810	N/A	201IBOAI

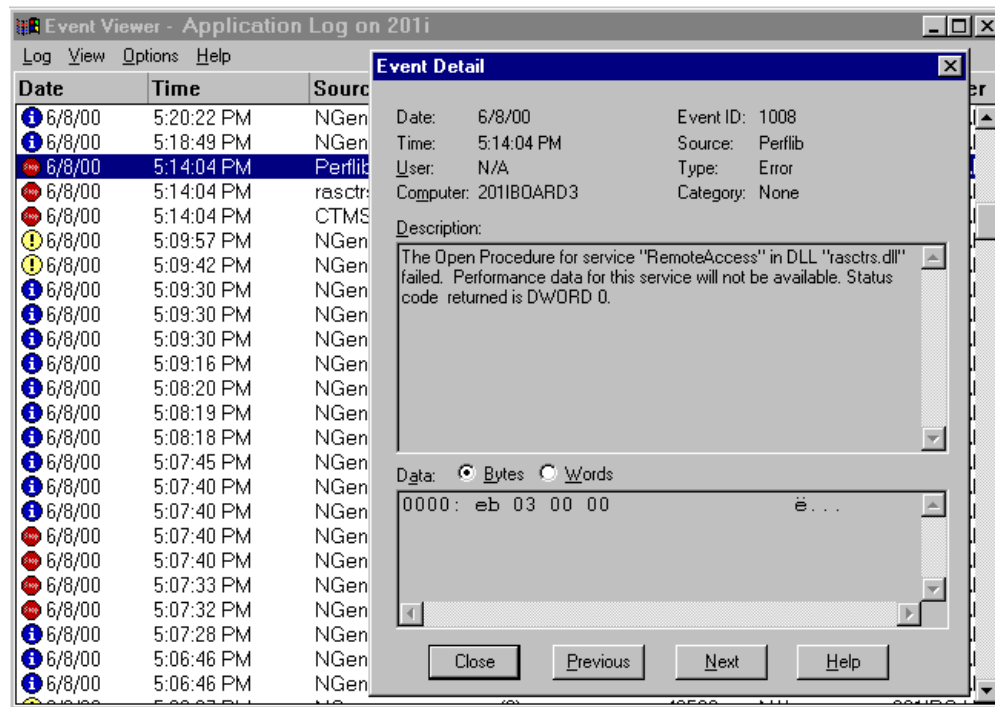
- 3 Look for error codes flagged with  or  that have occurred since the last boot.

Note: Each error is date and time stamped.  indicates major or critical errors.  indicates minor errors.

- 4 To determine the cause of the error, select and then double-click the error.

Result: A description of the error appears.

Note: The following Event Detail dialog box is an example of an error description from the Application Log:



- 5 Use the description to fix easily solvable errors.

Note: If the error persists or does not suggest a solution, contact your Nortel Networks support representative.

- 6 Click Close.

Result: The event log reappears.

- 7 Click Log > Exit.

Result: The Event Viewer closes.

Where to get more information

For more information about using the Windows NT System Event Viewer, click Help > Contents in the Event Viewer window.

Section D: Viewing installation and configuration log files

In this section

Viewing installation and configuration log files

50

Viewing installation and configuration log files

Installation or upgrade event log file

The installation event log tracks events associated with any install, reinstall, upgrade, or uninstallation operation. This log also tracks any fatal errors that interrupt these operations.

Use any text editor (for example, Notepad) to view the installation event log file located on the server in C:\sysops\sysops.log.

Configuration Wizard log file

Use any text editor (for example, Notepad) to view the Configuration Wizard log file located on the server in D:\Nortel\ConfigWizard\ConfigWiz.log.

Section E: Performing Windows NT online diagnostics

In this section

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Checking hardware using Windows NT 4.0 diagnostics	53
Invoking and interpreting TCP/IP diagnostics	56

Overview

Introduction

This section outlines how to access the run-time online diagnostics provided by the Windows NT server software.



CAUTION

Risk of software corruption

Do not run any utilities that are not documented in this manual.

Windows NT diagnostics

The Windows NT 4.0 system provides tools that can be used to diagnose and debug system problems, including the following:

- Windows NT Diagnostics
- Event Viewer

TCP/IP diagnostics

This section describes the following TCP/IP diagnostic tools available for the network adapter. The first three tools are the most useful:

- ipconfig
- ping
- tracert
- arp
- nbtstat
- netstat

These utilities help you verify network connectivity. Network connectivity is essential to CallPilot operation. These utilities will help you to thoroughly test the network interface and isolate any configuration problems.

Checking hardware using Windows NT 4.0 diagnostics

Introduction

The Windows NT 4.0 system provides tools that can be used to diagnose and debug system problems, including the following tools:

- Windows NT Diagnostics
- Event Viewer

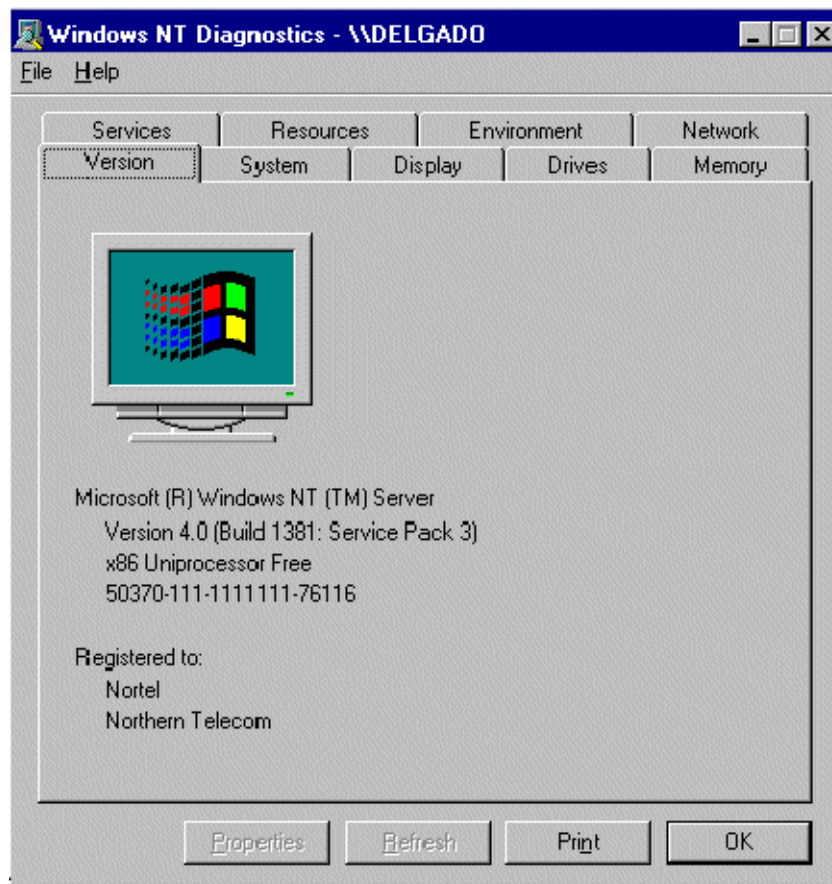
Windows NT Diagnostics window

The Windows NT 4.0 Diagnostics window allows you to view details about the system and network components.

You can open the following tabs on the Diagnostics window to display specific information:

- Version
- System
- Display
- Drives
- Memory
- Services
- Resources
- Environment
- Network

Windows NT Diagnostics window



To access Windows NT 4.0 diagnostic tools

- 1 Log on to Windows NT.
- 2 Click Start > Programs > Administrative Tools (Common) > Windows NT Diagnostics.

Result: The Windows NT Diagnostics window appears.

- 3 Click the appropriate tab to view information concerning the system and network.

The following table identifies the types of details available on each tab:

Select	To display details about
Version	Version Registration
System	System identifier HAL BIOS information Processors

Select	To display details about
Display	BIOS information Adapter Driver
Drives	Drives by type or letter To view specific details, select a drive, and then click Properties to view details for the drive, including size, labels, and so on.
Memory	Memory, including totals, physical and kernel memory, commit charge, kernel
Services	Service and state for both services and devices To view specific details, select a service, and then click Properties to view details, including pathname, dependencies, service flags, and so on.
Resources	Click one of the following buttons to display information about the resources available on the system: <ul style="list-style-type: none"> ■ IRQ ■ I/O Port ■ DMA ■ Memory ■ Devices To view specific details, select a resource, and then click Properties.
Environment	Variable and value for both system and local user
Network	Click one of the following buttons to display information about the network and components: <ul style="list-style-type: none"> ■ General ■ Transports ■ Settings ■ Statistics

Event Viewer

The Windows NT 4.0 Event Viewer provides event logs to help you diagnose and debug system problems.

For instructions on using the Event Viewer, see “Viewing event logs” on page 46.

Invoking and interpreting TCP/IP diagnostics

Introduction

This section describes the following TCP/IP diagnostic tools available for the network adapter. The first three tools are the most useful:

- `ipconfig` (below)
- `ping` (page 57)
- `tracert` (page 58)
- `arp` (page 59)
- `nbtstat` (page 60)
- `netstat` (page 62)

These utilities help you verify network connectivity. Network connectivity is essential to CallPilot operation. These utilities help you to thoroughly test the network interface and isolate any configuration problems.

The `ipconfig` command

The `ipconfig` command displays IP configuration information.

`Ipconfig` default

Running the command without flags displays the IP address, subnet mask, and default gateway for each adapter bound to TCP/IP.

`Ipconfig` command syntax

```
ipconfig [/ ]
```

The following flags are available for the `ipconfig` command:

Flag	Description
<code>/?</code>	Displays Help information.
<code>/all</code>	Displays full configuration information.
<code>/release</code>	Releases the IP address for the specified adapter.
<code>/renew</code>	Renews the IP address for the specified adapter.

To run the ipconfig command from Windows NT 4.0

- 1 Click Start > Programs > Command Prompt to display the MS-DOS command prompt window.

Result: The MS-DOS Command Prompt window appears.

- 2 At the MS-DOS prompt, type **ipconfig <with appropriate parameters>**.

Example: ipconfig /all

- 3 Press Enter.

Result: The system runs the ipconfig utility.

- 4 Type **Exit** to exit MS-DOS and return to Windows NT 4.0.

The ping command

The ping command sends an echo request to a specified host. Use this command to verify network connectivity to the remote device.

Ping command syntax

The ping command uses the following syntax:

```
ping [-t] [-a] [-n count] [-l size] [-f] [-i TTL] [-v TOS]
      [-r count] [-s count] [[-j host-list] | [-k host-list]]
      [-w timeout] destination-list
```

Parameter	Description
-t	Pings the specified host until interrupted.
-a	Resolves addresses to host names.
-n count	Specifies the number of echo requests to send.
-l size	Sends buffer size.
-f	Set Don't Fragment flag in packet.
-i TTL	Time To Live
-v TOS	Type Of Service
-r count	Record route for count hops
-s count	Time stamp for count hops
-j host-list	Loose source route along host list
-k host-list	Strict source route along host list
-w timeout	Timeout in milliseconds to wait for each reply

To run the ping command from Windows NT 4.0

- 1 Click Start > Programs > Command Prompt to display the MS-DOS command prompt window.
Result: The MS-DOS Command Prompt window appears.
- 2 At the MS-DOS prompt, type **ping <destination IP address>** (for example, ping 200.286.32.0:).
- 3 Press Enter.
Result: The system displays the ping results.
- 4 Type **Exit** to exit MS-DOS and return to Windows NT 4.0.

The tracert command

This utility determines the route taken to a destination.

How tracert works

The tracert utility follows several steps to complete its task:

- Tracert sends Internet Control Message Protocol (ICMP) echo packets with varying Time-To-Live (TTL) values to the destination.
- Each router along the path must decrement the TTL on a packet by at least 1 before forwarding it, so the TTL is effectively a hop count.
- When the TTL on a packet reaches 0, the router sends back an ICMP Time Exceeded message to the source system.
- Tracert determines the route by sending the first echo packet with a TTL of 1 and incrementing the TTL by 1 on each subsequent transmission until the target responds, or the maximum TTL is reached.
- Tracert then examines the ICMP Time Exceeded messages sent back by intermediate routers.

Tracert syntax

```
tracert [-d] [-h maximum_hops] [-j host_list] [-w timeout]  
[target_name]
```

Tracert parameters

The tracert command uses the following parameters:

Parameter	Description
-d	Specifies not to resolve addresses to hostnames.
-h maximum_hops	Specifies the maximum number of hops to search for the target.
-j host-list	Specifies a loose source route along the host list.

Parameter	Description
-w timeout	Waits the number of milliseconds specified by the timeout for each reply.
target_name	The name of the target host.

To run the tracert command from Windows NT 4.0

- 1 Click Start > Programs > Command Prompt to display the MS-DOS command prompt window.
Result: The MS-DOS Command Prompt window appears.
- 2 At the MS-DOS prompt, type the following command:
tracert [-d] [-h maximum_hops] [j host_list] [-w timeout] [target name]
Example: tracert 200.286.0.32 210 200.236.0.04
- 3 Press Enter.
Result: The system runs the tracert utility.
- 4 Type **Exit** to exit MS-DOS and return to Windows NT 4.0.

The arp command

The arp command displays and modifies the IP-to-physical address translation tables used by Address Resolution Protocol (arp).

Arp command syntax

The arp command uses the following syntax:

```
arp -s inet_addr eth_addr [if_addr]
```

```
arp -d inet_addr [if_addr]
```

```
arp -a [inet_addr] [-N if_addr]
```

Parameter	Description
-a	Displays current arp entries by interrogating the current protocol data. If inet_addr is specified, the IP and physical addresses for only the specified computer appear. If more than one network interface uses arp, entries for each arp table appear.
-g	Same as -a.
inet_addr	Specifies an Internet address.

Parameter	Description
if_addr	Specifies the Internet address of the interface whose address translation table should be modified. If not present, the first applicable interface is used.
eth_addr	Specifies a physical address.
-N if_addr	Displays the arp entries for the network interface specified by if_addr.
-d	Deletes the host specified by inet_addr.
-s	Adds the host and associates the Internet address inet_addr with the Physical address eth_addr. The physical address is given as six hexadecimal bytes separated by hyphens. The entry is permanent.

To run the arp command from Windows NT 4.0

- 1 Click Start > Programs > Command Prompt to display the MS-DOS command prompt window.
Result: The MS-DOS Command Prompt window appears.
- 2 At the MS-DOS prompt, type **arp** with the required parameters (for example, arp -g 200.286.0.32).
- 3 Press Enter.
Result: The system runs the arp command.
- 4 Type **Exit** to exit MS-DOS and return to Windows NT 4.0.

The nbtstat command

The nbtstat command displays protocol statistics and current TCP/IP connections using NBT. This command is available only if the TCP/IP protocol is installed.

Nbtstat command syntax

The nbtstat command uses the following syntax:

```
nbtstat [-a remotename] [-A IP address] [-c] [-n] [-R] [-r]
[-S] [-s] [interval]
```

Parameter	Description
-a remotename	Lists the remote computer's name table using its name.
-A IP address	Lists the remote computer's name table using its IP address.

Parameter	Description
-c	Lists the contents of the NetBIOS name cache giving the IP address of each name.
-n	Lists local NetBIOS names. Registered indicates that the name is registered by broadcast (Bnode) or WINS (other node types).
-R	Reloads the LMHOSTS file after purging all names from the NetBIOS name cache.
-r	Lists name resolution statistics for Windows networking name resolution. On a Windows NT computer configured to use WINS, this option returns the number of names resolved and registered through broadcast or through WINS.
-S	Displays both client and server sessions, listing the remote hosts by IP address only.
-s	Displays both client and server sessions, and attempts to convert the remote host IP address to a name using the HOSTS file.
interval	Displays selected statistics, pausing interval seconds between each display. Press CTRL+C to stop displaying statistics. Without this parameter, nbtstat prints the current configuration information once.

To run the nbtstat command from Windows NT 4.0

- 1 Click Start > Programs > Command Prompt to display the MS-DOS command prompt window.
Result: The MS-DOS Command Prompt window appears.
- 2 At the MS-DOS prompt, type **nbtstat** with the required parameters.
- 3 Press Enter.
Result: The system runs the nbtstat utility.
- 4 Type **Exit** to exit MS-DOS and return to Windows NT 4.0.

The netstat command

The netstat command displays current TCP/IP network connections and protocol statistics.

Netstat command syntax

The netstat command uses the following syntax:

```
netstat [-a] [-e] [-n] [-s] [-p proto] [-r] [interval]
```

Parameter	Description
-a	Displays all connections and listening ports.
-e	Displays Ethernet statistics. This can be combined with the -s option.
-n	Displays addresses and port numbers in numerical form.
-s	Displays per-protocol statistics.
-p proto	Shows connections for the protocol specified by proto. Proto can be tcp or udp. If used with the -s option, proto can be tcp, udp, or ip.
-r	Displays the contents of the routing table.
interval	Redisplays selected statistics, pausing between each display. Press CTRL+C to stop redisplaying.

To run the netstat command from Windows NT 4.0

- 1 Click Start > Programs > Command Prompt to display the MS-DOS command prompt window.
Result: The MS-DOS Command Prompt window appears.
- 2 At the MS-DOS prompt, type **netstat** with the required parameters.
- 3 Press Enter.
Result: The system runs the netstat utility.
- 4 Type **Exit** to exit MS-DOS and return to Windows NT 4.0.

Chapter 3

Using the administrative PC to diagnose the server

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Understanding fault management

Introduction

Fault management is a term that describes how the CallPilot server detects and notifies you of potential or real hardware problems (faults).

The server processes events to detect hardware problems and raises alarms to notify you when these problems occur.

Event processing

An event is any change in system configuration or operational state. An event is also any action taken by the system that requires user notification. Events can be as insignificant as a user logon attempt or as serious as a faulty MPC-8 card switching to disabled status.

All events are reported to the Fault Management Server, an invisible subsystem within the server. The Fault Management Server enables the server to listen and respond to its clients.

The interaction is called event processing and is the means by which the server detects hardware faults.

Alarm notification

Many events occur as part of the normal operation of the server. Other events represent potential or real problems. When these events occur, an alarm is raised to notify you.

When an alarm appears in the Alarm Monitor, you must investigate the problem, isolate it, and then fix the cause of the problem. When you fix the problem, the alarm is cleared from the Alarm Monitor.

To isolate and fix hardware problems, see Section A: “Detecting, isolating, and fixing hardware problems,” on page 65.

Section A: Detecting, isolating, and fixing hardware problems

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Overview

Introduction

This section provides guidelines on how to detect, isolate, and fix potential or real hardware problems:

- “Detecting hardware problems” below provides information on the different ways in which you typically become aware of hardware problems.
- “Using the Alarm Monitor, Event Browser, and Maintenance window” on page 67 describes how to work with the Alarm Monitor, Event Browser, and Maintenance window. Use these tools to isolate the cause of problems and plan a strategy to fix hardware problems.

Component dependencies

The status of some components are dependent on the operational status of other components. If a component fails or is stopped, the dependent components go out of service.

Component	Dependent components
Timeswitch	all Multimedia and DS0 channels
MPC	all multimedia channels on the MPC-8 card
DS30x	all DS0 channels associated with the DS30x interface

Detecting hardware problems

Typically, you first become aware of a hardware problem when an alarm is raised. All hardware faults produce an alarm (or series of alarms, depending on the problem) in the Alarm Monitor.

Note: By default, the Alarm Monitor appears as soon as an alarm is raised. It does not appear if Alerting Off has been set in the SMI window. For more information on setting or resetting the alerting feature, refer to the *CallPilot Monitoring and Security Guide for the Administrator*.

Other indications

Other indications of a hardware problem include the following:

- call processing difficulties, such as busy signals, static, dropped calls, trouble connecting, and cross talk (hearing other conversations)
- system administrator logon difficulties
- alert icons on the Maintenance window

Using the Alarm Monitor, Event Browser, and Maintenance window

Introduction

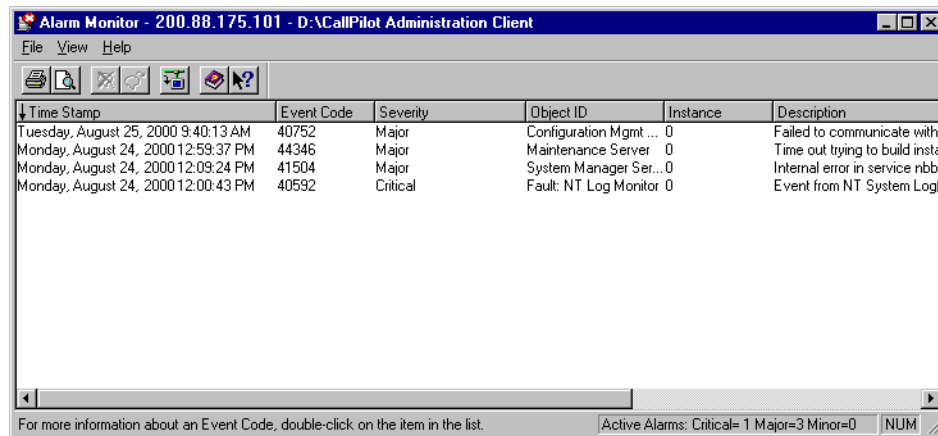
Use one of the following methods to isolate and plan a strategy to fix a hardware problem:

- Use the Alarm Monitor to investigate one or more raised alarms.
- Use the Event Browser to investigate a series of events that occurred around the time an alarm was raised.
- Use the Maintenance window to get status information for any suspect components. For some components, you can use the Diagnostic tab on the Maintenance window to run a diagnostic test.

Note: For detailed information on how to use the Alarm Monitor and Event Browser (for example how to set preferences), refer to *CallPilot Monitoring and Security for the Administrator*.

Using the Alarm Monitor

Each alarm in the Alarm Monitor has Help text that often provides a solution to the problem. If the solution is not apparent, use the Event Browser or the Maintenance window to further investigate the problem.



To investigate using the Alarm Monitor

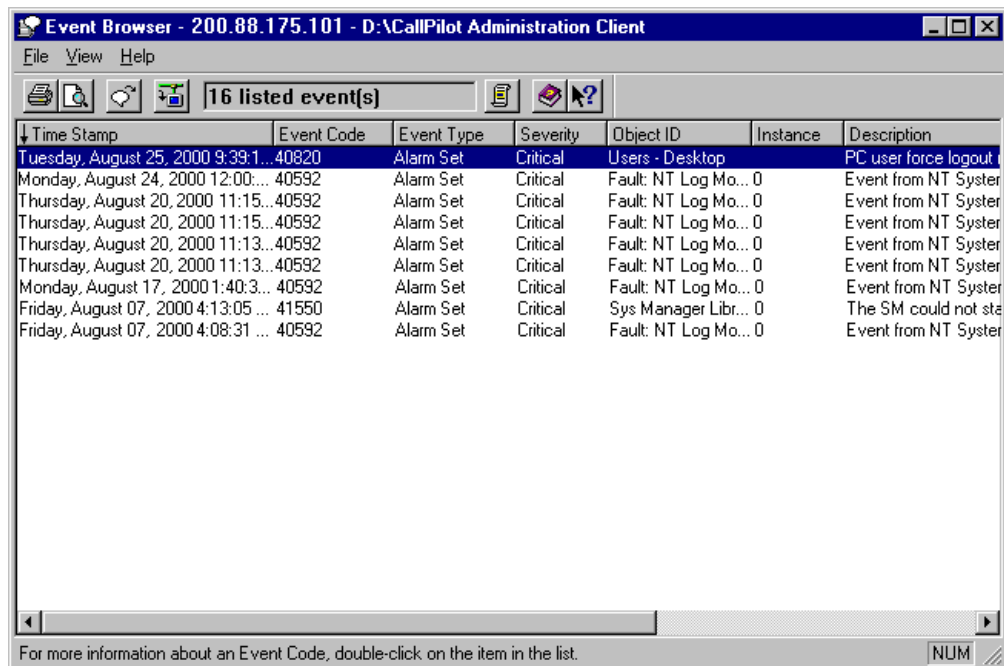
- 1 Double-click the first critical or major alarm.

Result: The Help window appears.

- 2 View the description and recovery action.
- 3 Repeat steps 1 and 2 for a few more alarms.
- 4 If the solution to the problem is not apparent, obtain the return code of the first event and continue the investigation by using the Event Browser (see “Using the Event Browser” below).

Using the Event Browser

The Event Browser lets you view events that have been recorded in the server log. The event listing can help you better determine the root cause of the problem. Use the Event Browser to view the time the event occurred, the object that generated the event, and the cause of the event.



To investigate using the Event Browser

- 1 Double-click an event that appears to be related to the problem, or an event that occurred near the time the alarm was raised.
- 2 View the description and recovery action.
- 3 Repeat steps 1 and 2 for a few more events.
- 4 If the solution to the problem is not apparent, contact your distributor.

Using the Maintenance window

If you suspect or discover a problem with the serial ports, an MPC-8 card, or the timeswitch, use the Diagnostic tab on the Maintenance window. You can view the results of the last diagnostic test run against the component. This produces a list of components that might be causing the problem. A probability percentage is listed with each component that reflects how probable it is that replacing the component will fix the problem.

For information on all aspects of the Maintenance window, see Section B: “Working with the Maintenance window,” on page 71.

For information about using the Maintenance window to view the results of the last diagnostic test, see “Viewing the last diagnostic results” on page 88.

Section B: Working with the Maintenance window

In this section

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Introducing the Maintenance window

Introduction

Use the Maintenance window to do the following:

- Obtain general information about components.
- View component states.
- Start and stop components.
- Run integrated diagnostic tests.
- View the results of the last diagnostic test run against a component.
- Obtain replacement part numbers for components.

What the Maintenance window provides

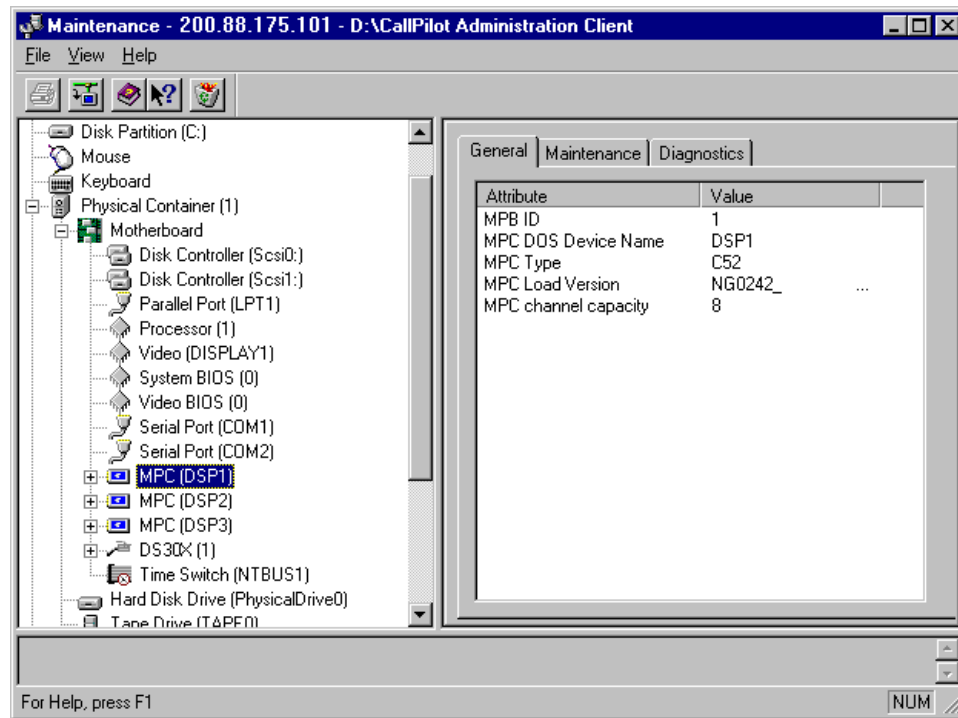
All physical and logical hardware components are listed in the tree on the Maintenance window. This tree shows how components relate to each other. For example, eight multimedia channels exist as subcomponents for each MPC-8 card.

When you select a component in the Maintenance window, at least one of the following tabs appears:

Tab	Description
General	This page shows general technical information about the selected component.
Maintenance	This page shows the state of the selected component. You can also take some components out of service from this page.
Diagnostics	This page enables you to run component-specific diagnostics.
Replacement	This page shows replacement part numbers for selected components.

The General tab

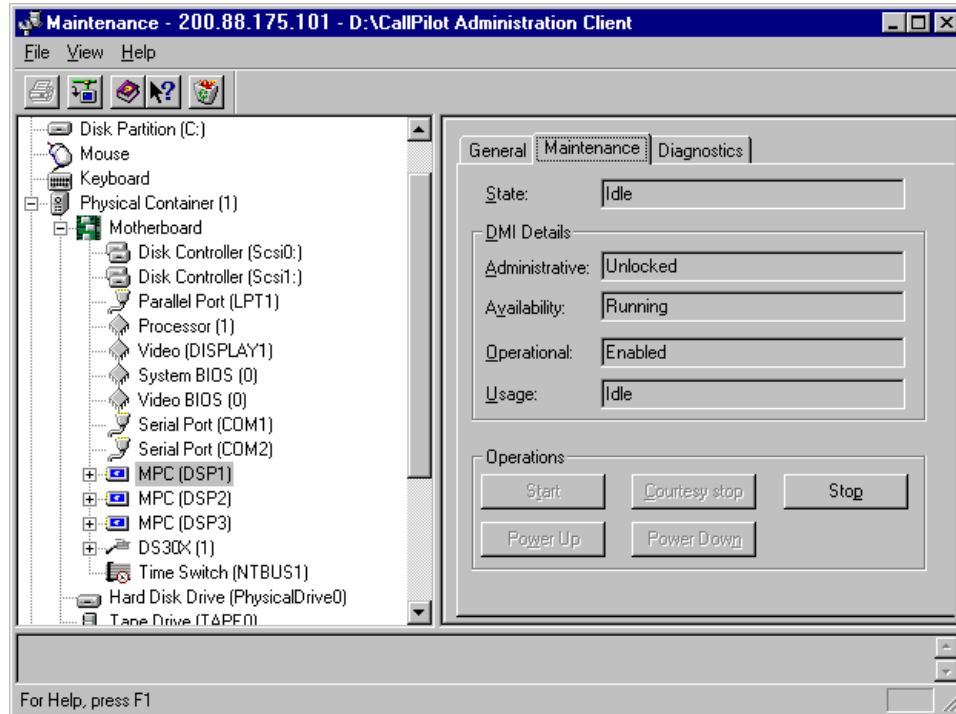
Use the General tab to view general information about components.



Box	Description
Attribute	Shows component-specific general technical information.
Value	Shows additional details, such as the speed of a selected device.

The Maintenance tab

Use the Maintenance tab to view the state of the highlighted component, and to start and stop a component before running a diagnostic test.

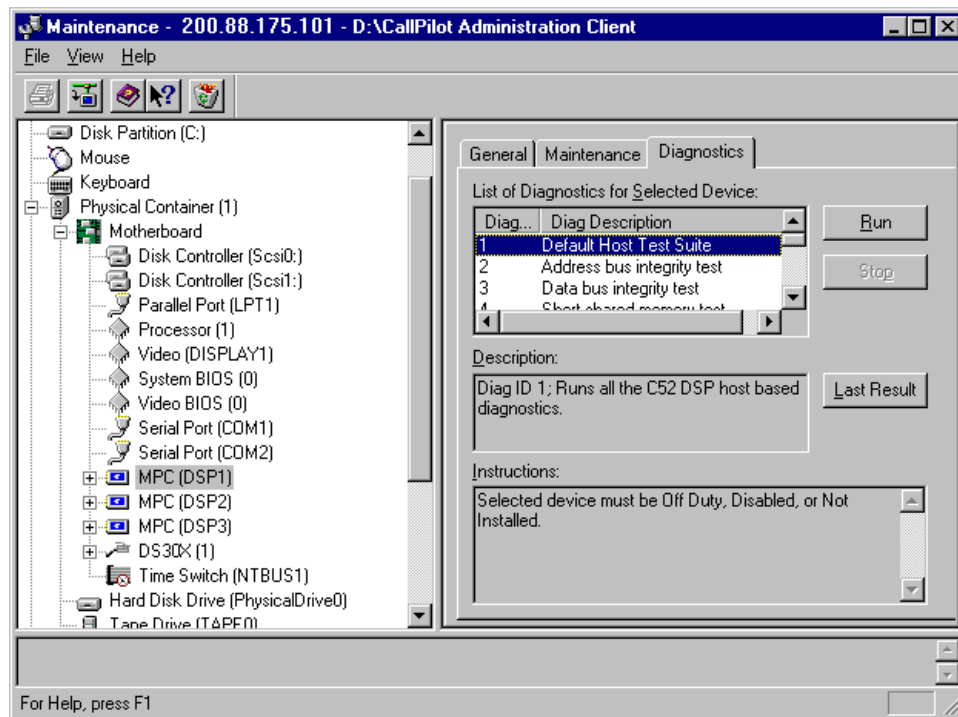


Box	Description
State	Specifies the state of the highlighted component.
Administrative	This is a Desktop Management Interface (DMI) summary state. You do not need this state.
Availability	Not applicable for 201i.
Operational	Not applicable for 201i.
Usage	Not applicable for 201i.
Start	Use this button to put the selected device in service.
Courtesy stop	Use this button to take the selected device out of service after all calls are finished. This prevents any calls from being disconnected.

Box	Description
Stop	Use this button to take the selected device out of service immediately. All calls in progress are disconnected.
Power Up	Use this button to power up an MPC-8 card that had been powered down. For more details, see “To remove an MPC” on page 131.
Power Down	This button can be used only for MPC-8 cards on a 201i server. Use this button to power off an MPC-8 card prior to replacing it. For more details, see “To remove an MPC” on page 131.

The Diagnostics tab

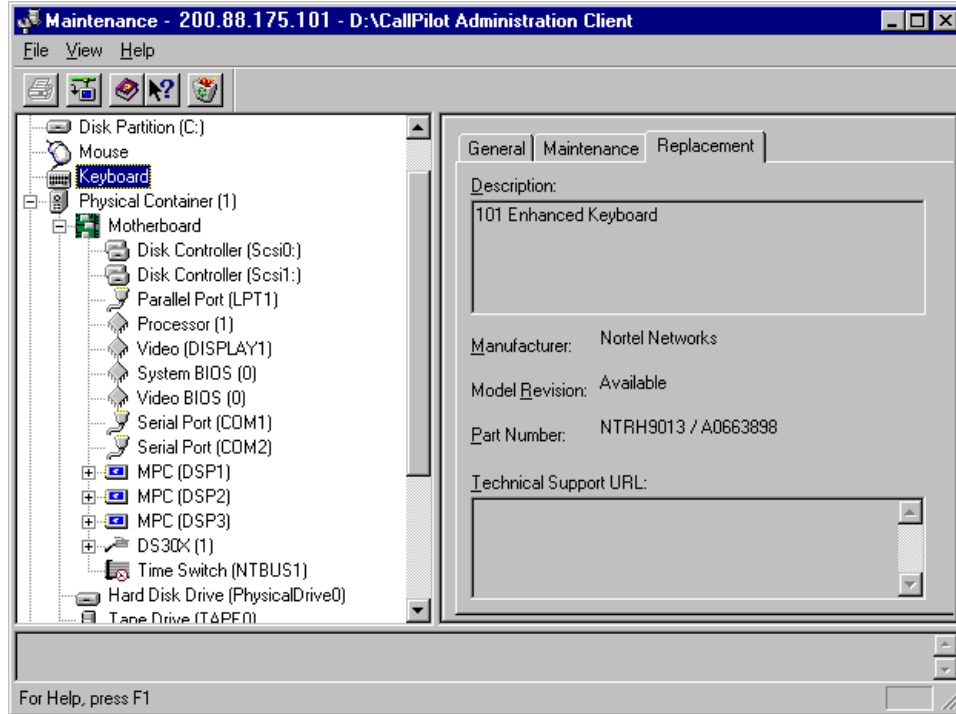
Use the Diagnostics tab to run a diagnostic test or to view the results of the last diagnostic test run on a component.



Box	Description
List of Diagnostics for Selected Device	<p>Shows the diagnostic tests that are available for the highlighted component.</p> <p>When you click a test in this list, a description of the test appears in the Description box. Instructions for running the test appear in the Instructions box.</p>
Run	Use this button to run the selected diagnostics.
Stop	Use this button to stop the selected diagnostics.
Description	Shows a comment or description for the selected diagnostic test.
Last Result	<p>Use this button to view the results of the last diagnostic test.</p> <p>The results include a list of Field Replaceable Units (FRU), which, if replaced, might fix the problem. Each FRU is shown with a percentage that shows how probable it is that the component caused the hardware problem.</p>
Instructions	Shows the instructions for running the selected diagnostic test.

The Replacement tab

Use the Replacement tab to find the part number for the component that you need to replace.



Box	Description
Description	Shows the name of the highlighted component.
Manufacturer	Shows the manufacturer of the component.
Model Revision	Shows the revision number for the component.
Part Number	Shows the part number for the component.
Technical Support URL	Shows a web site address where you can get technical support.

Obtaining general information about components

Introduction

Find general technical information for each hardware component listed in the tree using the General tab on the Maintenance window.

For a description of the General tab, see “The General tab” on page 73.

Type of technical information

Technical information about hardware components typically includes the following details:

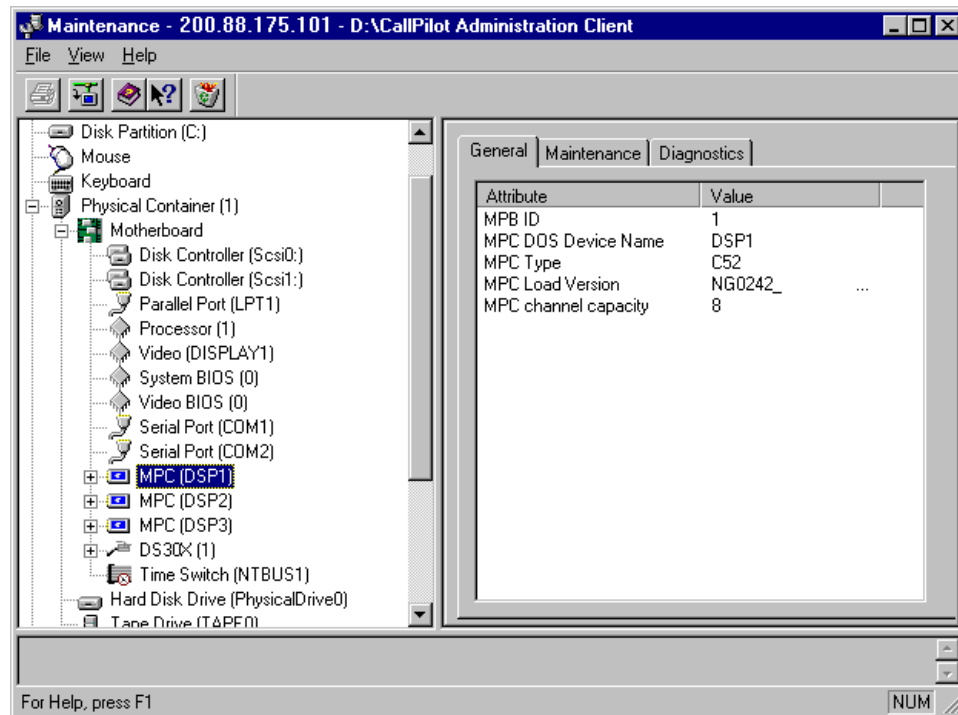
- the name, class, type, series, or version of a component
- various capabilities of a component (for example, the speed of a CPU)
- the available disk space

Getting there CallPilot system > System Administration > Maintenance Administration > Maintenance

To view component details

- 1 In the left pane of the Maintenance window, select the hardware component for which you want to obtain information.

Result: The General page appears with general information shown.



Viewing component states

Introduction

View a component's state to determine the general condition of the component, including whether the component is disabled or off duty. You can view the state of components that are listed in the Maintenance tab on the Maintenance window.

For a description of the Maintenance tab, see page 74.

Component states

The state of a hardware component changes depending on the following factors:

- whether the component is currently involved in processing a call
- whether a diagnostic test is being run on the component
- whether the component is out of service

You can determine the state of a component by looking at the State box on the Maintenance tab.



State	Description
Active	The component is working and currently involved in processing a call.
Idle	The component is working but not currently involved in processing a call.
Uninstalled	The component is not installed or properly configured. This usually happens only when the system is being configured, or if the database is corrupted.
Shutting Down	The component is in the process of stopping. This state occurs quickly and is immediately followed by Off Duty.
Loading	The component has been started, which takes it out of the Off Duty state. This state occurs quickly and is immediately followed by Idle.
No resources	The hardware required for the component to operate is not installed or is not operating properly.
Off duty	The component has been stopped.
Remote Off Duty	The component has been taken out of service at the switch.

DMI details

These states (Administrative, Availability, Operational, and Usage) are standard Desktop Management Interface (DMI) states. They are shown for administrators who understand and use the DMI standard in other aspects of their jobs. You do not need to use the DMI states; the summary state listed in the State box is provided instead.

Alert icons

If one of the following icons appears next to a component in the tree, then the component or one of its subcomponents is experiencing a problem:

Icon	Description
	<p>This means that a diagnostic test run on the component has failed, and the component has been placed into disabled status.</p> <p>You must view the last results of the diagnostic test. See “Viewing the last diagnostic results” on page 88.</p>
	<p>This means that a problem exists with one of the component's subcomponents.</p> <p>Expand the tree to locate the subcomponent with the problem.</p>

Getting there CallPilot system > System Administration > Maintenance Administration > Maintenance

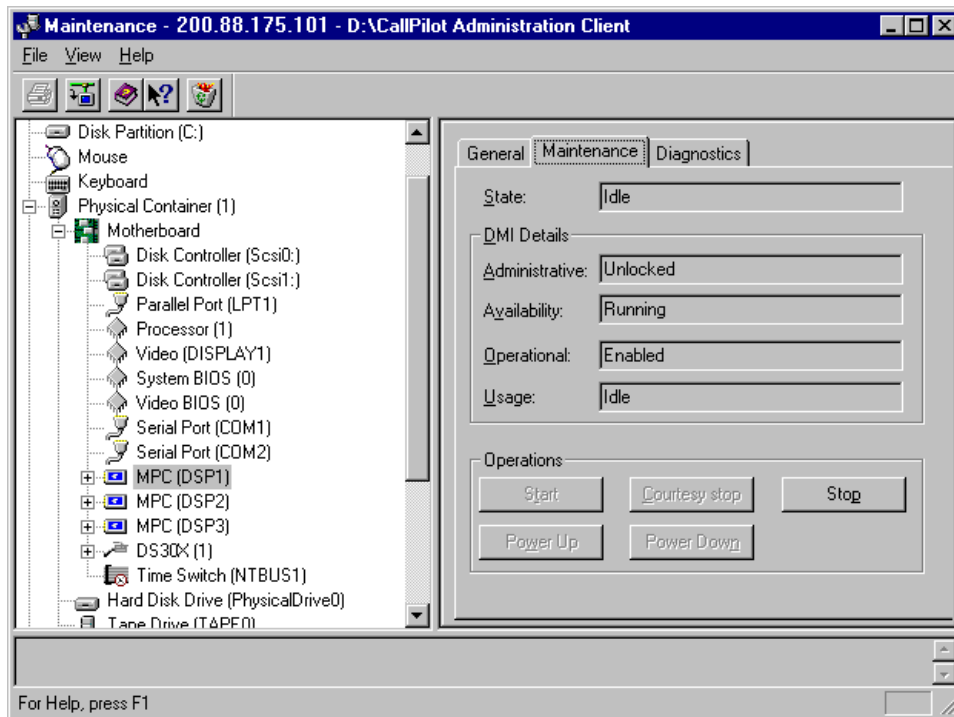
To view the state of a hardware component

- 1 In the left pane of the Maintenance window, select the hardware component.

Result: The General page appears.

- 2 In the right pane, click the Maintenance tab.

Result: The Maintenance page appears.



- 3 View the state of the selected component in the State box.

Starting and stopping components

Introduction

When you stop a component, you take it out of service and prevent it from operating. You must stop a component before you can run a diagnostic test on it.

After you replace the component or run a successful diagnostic test, put the component back into service by starting it.

Start and stop components from the Maintenance tab on the Maintenance window. For a description of the Maintenance tab, see page 74.

Components that can be started and stopped

Only the following components can be started and stopped.

If you want to start or stop more than one or two multimedia or DS0 channels, use the Channels windows. Refer to the *CallPilot Monitoring and Security Guide for the Administrator* for more information.

Component	Effect of stopping	Replaceable?	Diagnostics available
Timeswitch	This is not supported by the 201i server.	No	No
MPC-8 cards	Takes the selected MPC-8 card out of service.	Yes	Yes
Multimedia (DSP) channels	Takes the selected DSP channel out of service.	No	No
Call channels	Takes the selected call channel out of service.	No	No
DS30x link	Takes the selected DS30x link out of service.	Yes	No

Stop versus Courtesy stop

The following two methods of taking a component out of service allow you to choose how active calls are affected.

Courtesy stop

A Courtesy stop takes the component out of service only after the component has finished processing the active call. If the component is currently processing a call, the call is not dropped. If the component is not currently in use, it is taken out of service immediately. This method is preferred over a regular Stop.

Stop

A stop takes the component out of service immediately, regardless of whether the component is currently processing calls. All active calls are dropped. Typically, you perform a Stop only when severe problems that are affecting a large number of incoming calls occur or if your organization determines a special need for it.

Getting there CallPilot system > System Administration > Maintenance Administration > Maintenance

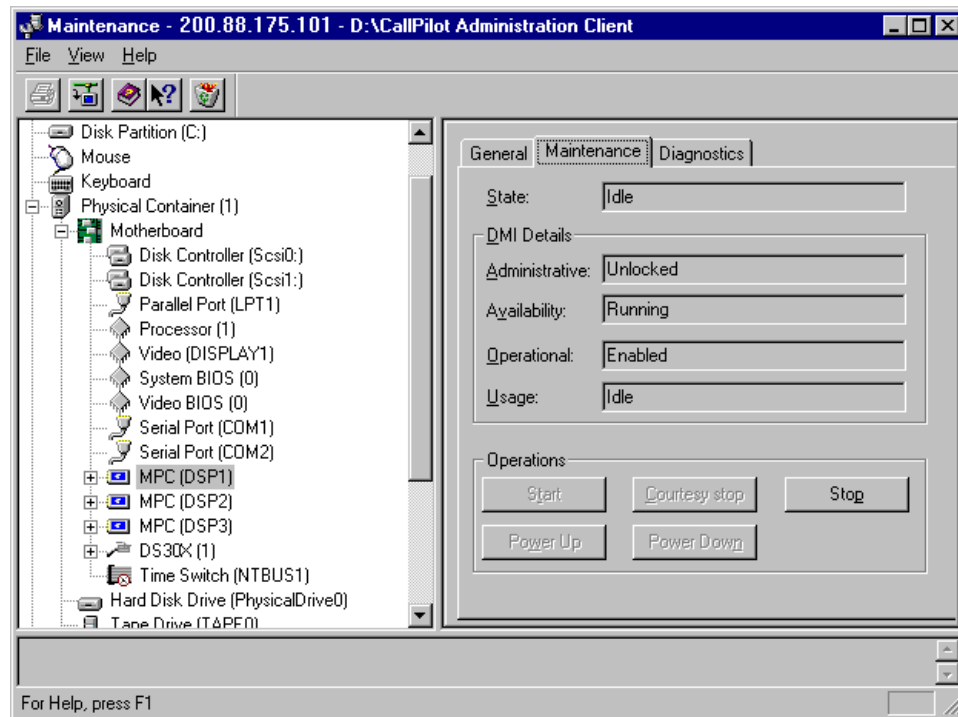
To start or stop a component

- 1 In the left pane of the Maintenance window, select the hardware component you want to start or stop.

Result: The General page appears.

- 2 In the right pane, click the Maintenance tab.

Result: The Maintenance page appears.



- 3 Click Courtesy stop, Stop, or Start.

Running integrated diagnostics

Introduction

You should run diagnostic tests from the Diagnostics tab on the Maintenance window in the following circumstances:

- After installing or reinstalling a component, make sure it is operating properly.
Note: A component must be Off Duty [stopped] before you can run the diagnostic test. See “Starting and stopping components” on page 83.
- Run the tests if the CallPilot server experiences trouble processing incoming calls.
Problems include static, dropped calls, and cross talk (hearing another conversation).

Note: For a description of the Diagnostics tab, see “The Diagnostics tab” on page 75.

If a diagnostic test fails or cannot be run

If a warning box appears, the diagnostic test cannot be run because a prerequisite condition has not been met. If a diagnostic test fails, the failure is indicated at the bottom of the Diagnostics tab.

In both cases, check the Alarm Monitor to determine the reason and the appropriate action to take. (See “Detecting, isolating, and fixing hardware problems” on page 65.)

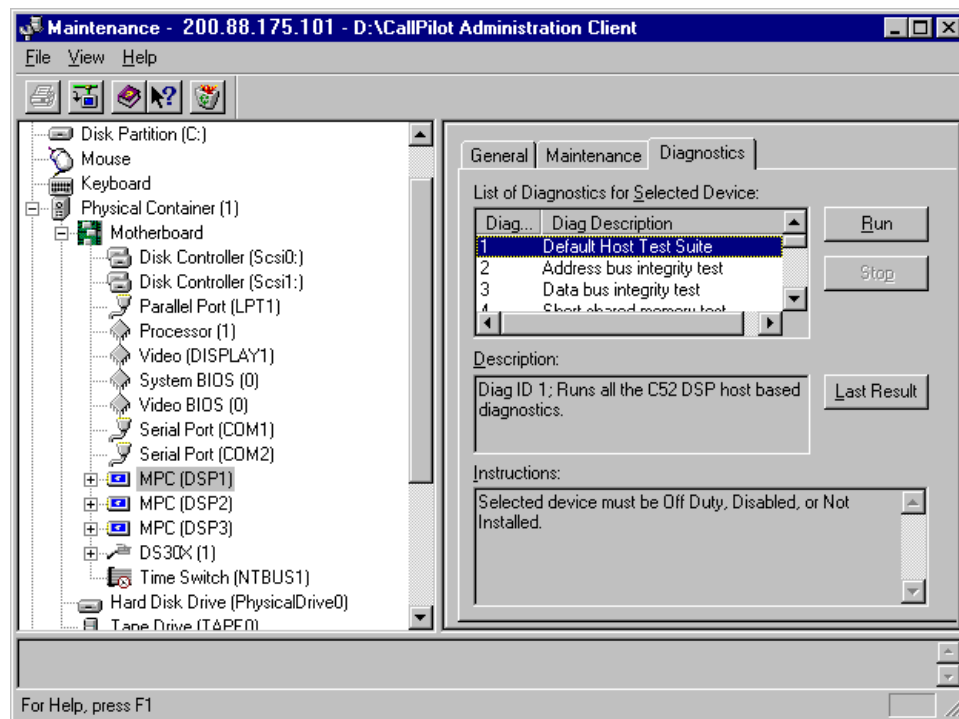
To run a diagnostic test

- 1 In the left pane of the Maintenance window, select the hardware component for which you want to run a diagnostic test.

Result: The General page appears.

- 2 In the right pane, click the Diagnostics tab.

Result: The Diagnostics page appears.



- 3 Select the diagnostic test you want to run.
- 4 Click Run.
- 5 View the diagnostic test results at the bottom of the Diagnostics page.

Viewing the last diagnostic results

Introduction

If the Alarm Monitor and Event Browser do not provide a solution to a hardware problem, you might need to replace or service a component. If the problem rests with a component that is not replaceable because it is not a physical entity (such as the timeswitch), you must either replace its parent component or contact your Nortel Networks technical support representative, depending on the component.

Replaceable parts are called Field Replaceable Units (FRUs). View the last diagnostic test result in the Diagnostics tab on the Maintenance window to obtain a list of FRUs that, when replaced, will likely fix the problem.

Notes:

- For general information on investigating hardware problems, see “Detecting, isolating, and fixing hardware problems” on page 65.
- For a description of the Diagnostics tab, see page 75.

Field replaceable units

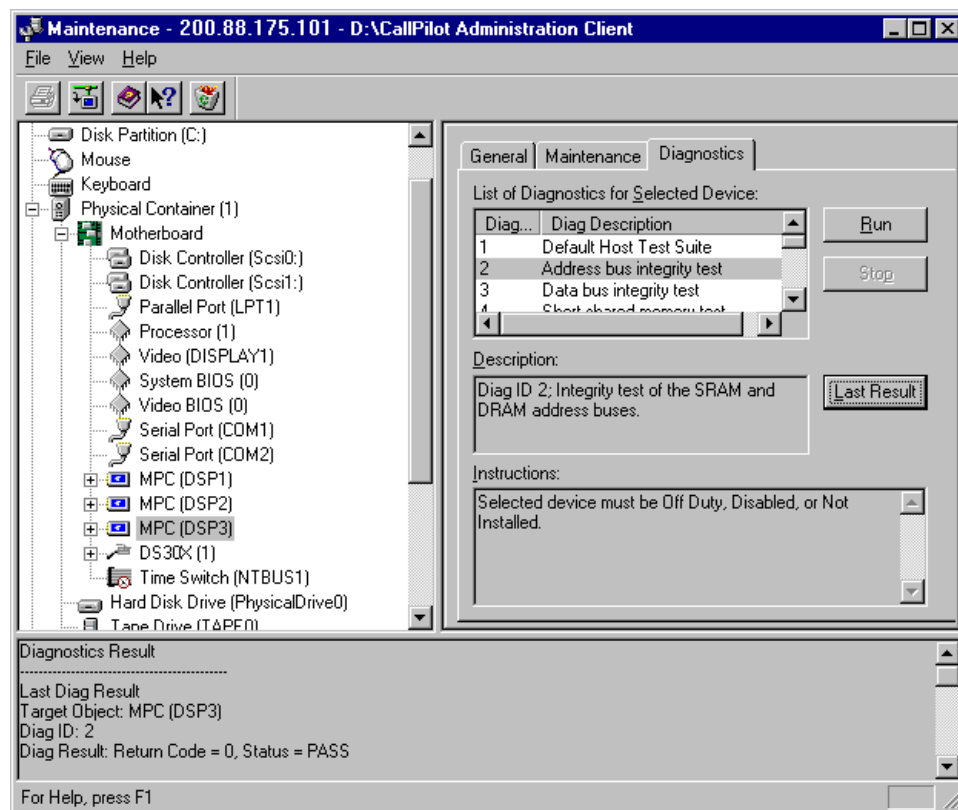
When you view the last results of a failed diagnostic test, a Diagnostic Result description appears at the bottom of the Diagnostics tab. This description includes a list of components that might have caused the problem.

Each FRU is shown with a percentage that represents how probable it is that the component caused the hardware problem. Use these percentages as a guide to determine which component to try replacing first; the higher the percentage of probability, the better the chance that replacing the FRU will fix the problem.

To view the last diagnostics result

- 1 In the left pane of the Maintenance window, select the hardware component.
Result: The General page appears.
- 2 In the right pane, click the Diagnostics tab.
Result: The Diagnostics page appears.
- 3 Click Last Result.

Result: The results of the last diagnostic test appear at the bottom of the Diagnostics page.



- 4 View the last results to determine what action to take.

Last diagnostic results

The results of the last diagnostic test display the following information at the bottom of the Diagnostics tab:

Information	Description
Target Object	This is the component selected in the tree.
Diag ID	This is the ID of the diagnostic test that was run. The diagnostics IDs and descriptions are listed in the List of Diagnostics for Selected Device window on the Diagnostics page.
Diag Result	The diagnostic result includes a return code and whether the diagnostic test passed or failed.

Information	Description
Result Description	<p data-bbox="672 310 1334 415">This section appears only when the diagnostic test fails. This is a more detailed description of the problem. This description includes the following details:</p> <ul data-bbox="672 426 1334 598" style="list-style-type: none"><li data-bbox="672 426 1068 468">■ the error that was encountered<li data-bbox="672 478 1334 541">■ a list of components that might have caused the error with a probability percentage<li data-bbox="672 552 1040 594">■ troubleshooting instructions

Chapter 4

Using CallPilot system utilities

In this chapter

Overview	92
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PEP Maintenance utility	95
Services Monitor	97
Session Trace	99
System Information	104
System Monitor	105

Overview

Introduction

The following table lists the CallPilot system utilities:

Utility	Description
Diagnostics Tool	Allows CallPilot startup diagnostics to be enabled or disabled (turned on or off).
PEP Maintenance	Displays a list of installed PEPs and enables PEP uninstall.
Services Monitor	Displays the true status of all CallPilot services according to the WinNT definition.
Session Trace	Provides detailed information about the activity in a user's mailbox and the state of the message waiting indicator (MWI).
System Information	Displays particulars about the CallPilot System, such as names, keycodes, serial numbers, IP addresses, and system numbers.
System Monitor	Displays the status of all CallPilot subsystems related to call processing.

Accessing the system utilities

All CallPilot customer administrator tools are accessible from the server using Start > Programs > CallPilot > System Utilities.

Diagnostics Tool

Introduction

The Diagnostics Tool allows you to enable or disable CallPilot startup diagnostics as required by the user or the system.

CallPilot startup diagnostics automatically identifies hardware problems that might exist when the system and its services are started (DSP, TimeSwitch, SCbus).

This tool saves time during system maintenance operations where restarts or Call Processing services restarts are required.

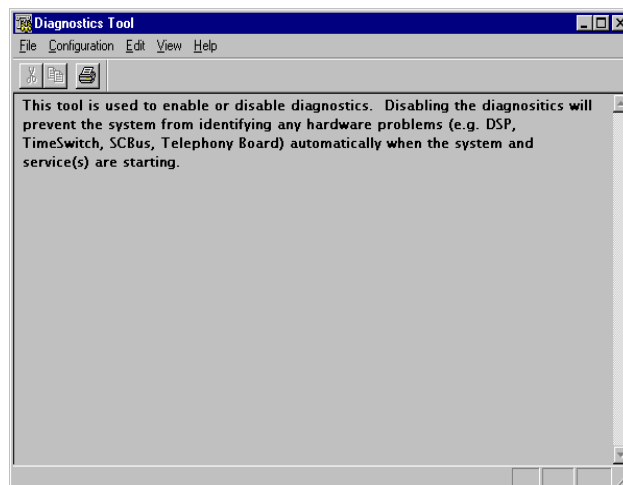
There are three recommended steps:

- Use the Diagnostics tool to turn off CallPilot startup diagnostics.
- Perform system maintenance.
- Use the Diagnostics tool to turn on CallPilot startup diagnostics.

To access the startup Diagnostic Tool

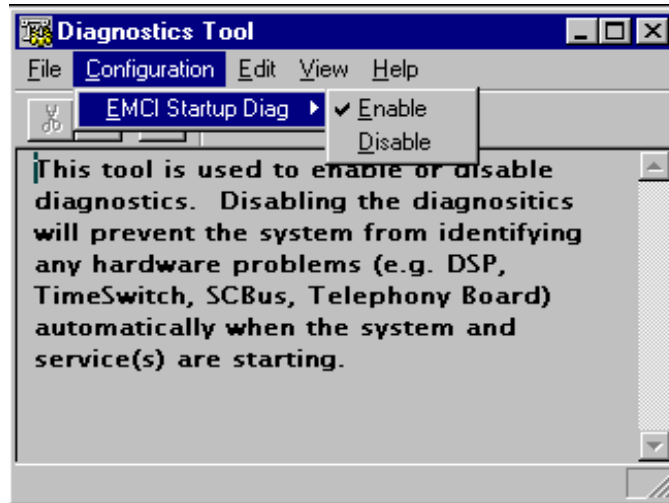
From the Windows Start menu, choose Programs > CallPilot > System Utilities > Diagnostic Tool.

Result: The Diagnostics Tool window appears.



To enable startup diagnostics

From the menu, choose Configuration > EMCI Startup Diag > Enable.



To disable startup diagnostics

ATTENTION

Nortel Networks recommends that you leave the startup diagnostics turned on.

When you disable CallPilot startup diagnostics, you prevent CallPilot from automatically identifying hardware problems that might exist when the system and its services are started (DSP, TimeSwitch, SCbus).

From the menu, select Configuration > EMCI Startup Diag > Disable.

PEP Maintenance utility

Introduction

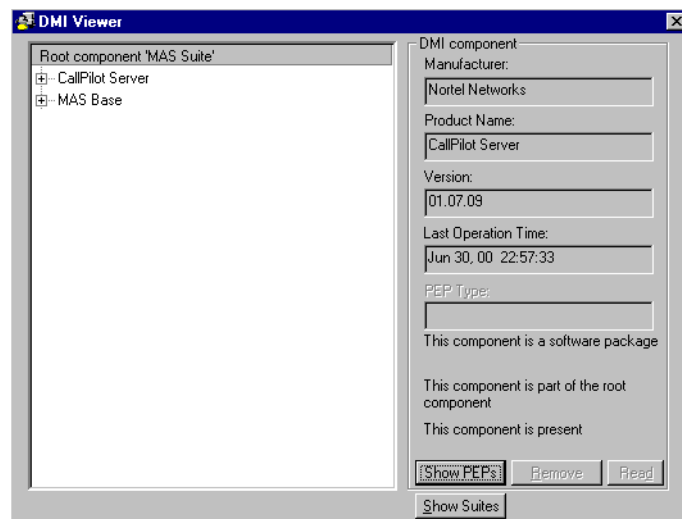
The PEP Maintenance utility displays a list of all installed PEPs on the server and enables you to uninstall PEPs.

For information on uninstalling PEPs, refer to “Installing Performance Enhancement Packages” on page 209.

To access the PEP Maintenance utility

From the Windows Start menu, choose Programs > CallPilot > System Utilities > PEP Maintenance.

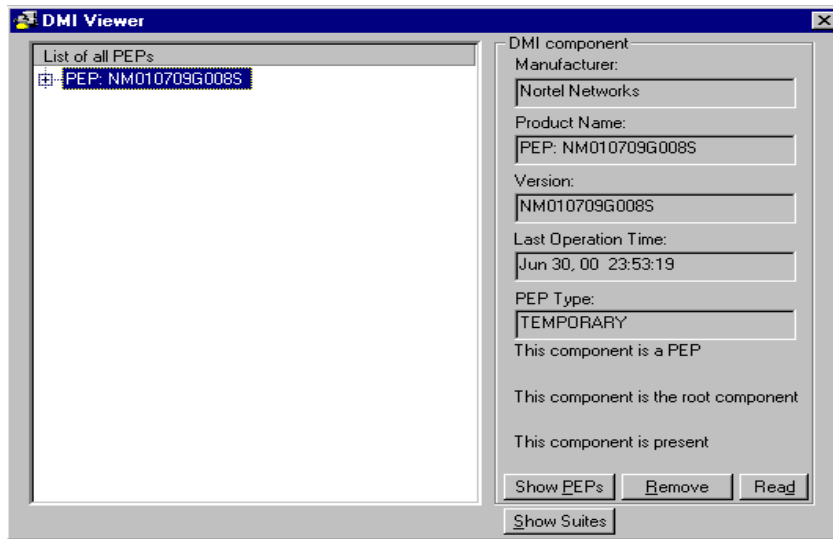
The DMI Viewer window appears.



To view a list of all installed PEPs

- 1 Click the component for which you want to display the PEP list.
- 2 Click Show PEPs.

Result: A list of all installed PEPs appears in the left pane.



- 3 If you want to review the readme file associated with a PEP, click the PEP and then click Read.

Result: The readme file opens in Notepad.

Services Monitor

Introduction

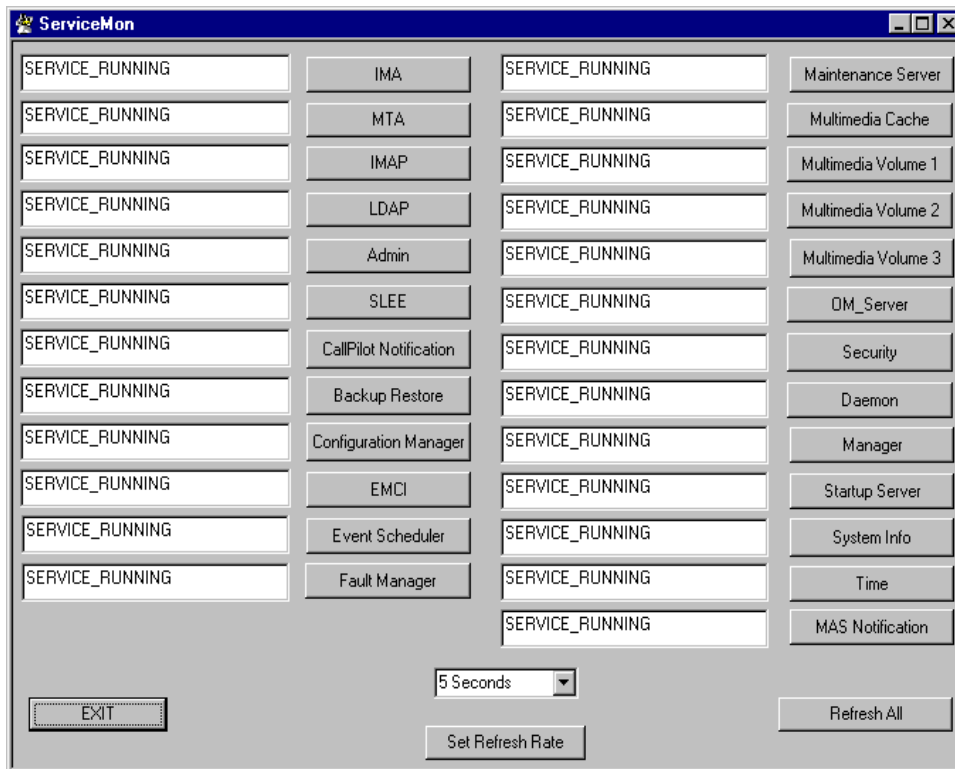
The Services Monitor helps you determine whether the CallPilot server is fully operational. It displays true states of the CallPilot services according to Windows NT definition, including the states that are not available through the control panel.

Note: The fact that a service is running does not necessarily mean that it is fully operational. It might require some initialization, database connections, internal data structures, and so on.

To access the Services Monitor

From the Windows Start menu, choose Programs > CallPilot > System Utilities > Service Monitor.

Result: The ServiceMon window appears.



Note: A service can be running from a Windows NT perspective; however, due to interprocess dependencies, there might be some steps before the service is fully operational.

Using the Services Monitor

The Services Monitor provides the status of each CallPilot service (for example, running, any pending or pausing state).

Refresh All enables the display to be refreshed. Use Set Refresh Rate to set the rate of refresh or set to none.

Session Trace

Introduction

The Session Trace tool displays detailed information about the activity in a user's mailbox and the state of the message waiting indicator (MWI). The session information includes

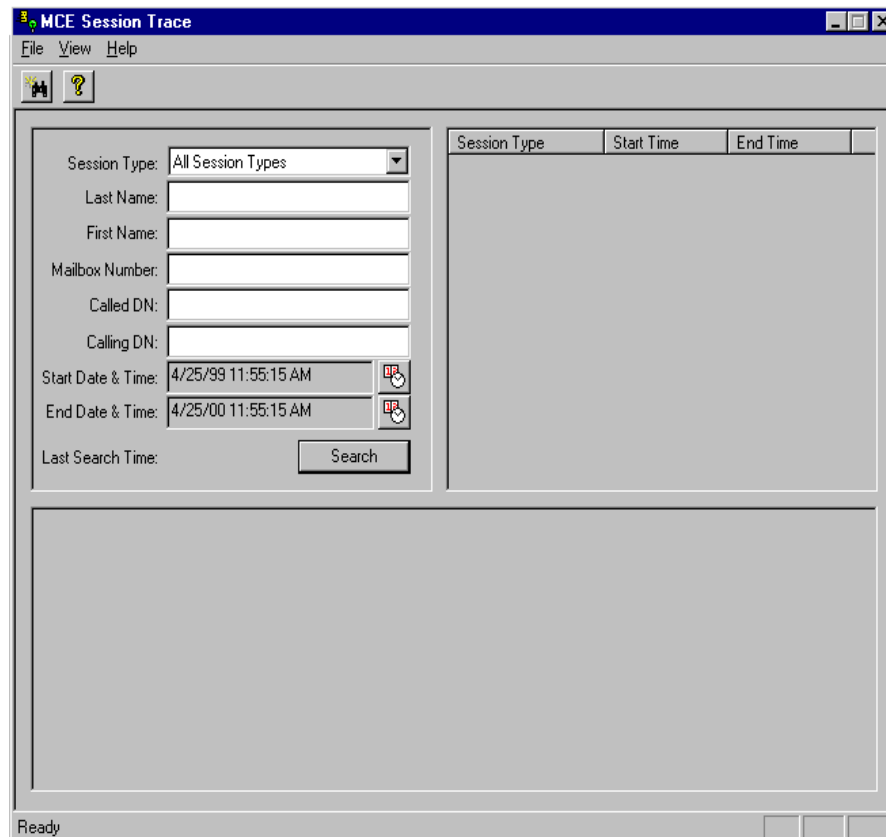
- voice messaging
- call answering
- express messaging activity (messages composed and sent, or left in a mailbox)
- the number of messages played or unplayed at the beginning, middle, and end of a session
- messages and personal distribution lists restored into a mailbox
- the last change to the MWI (turned on or off, or untouched)

This session information allows an administrator or technician to study the state of a user's mailbox and the MWI, and to use that information to follow up on any user complaints. For example, a user might complain that the MWI was on, but no voice messages were in the mailbox when the user logged on. The session information might tell the administrator why the MWI was turned on.

To access the session trace tool

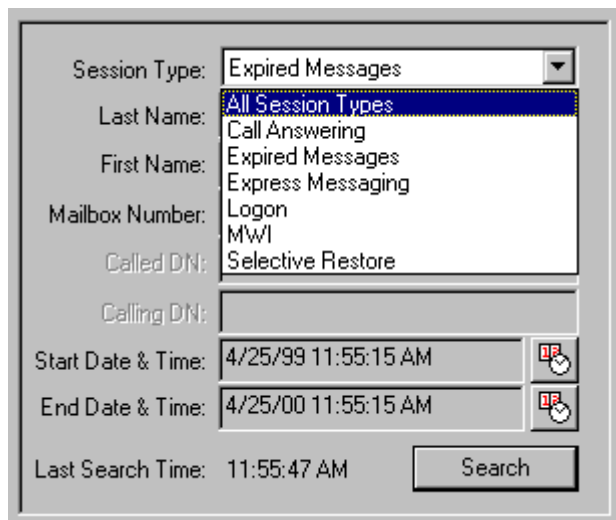
From the Windows Start menu, choose Programs > CallPilot > System Utilities > Session Trace Tool.

Result: The MCE Session Trace window appears.



To find a session

- 1 From the Session Type drop-down menu, choose the type of session.



To display a list of all session types, select All Session Types.

- 2 Enter as much information in the search criteria boxes to identify the session you want to view.

To display a list of all users for the selected Session Type, leave the search criteria boxes blank.

- 3 Click Search to initiate the search.

- a. If you did not enter any user information, a list of users matching the Session Type appears at the bottom of the window.

To select a user from the list, double-click the user name to display session type information.

- b. If you selected All Session Types for a user, the session type information appears to the right of the window.

- 4 Double-click the session type to display the session information.

Result: The Session Type information appears at the bottom of the window.

Session type information

Call Answering session type information

The screenshot shows the 'MCE Session Trace' application window. The 'Session Type' is set to 'All Session Types'. The search criteria include Last Name: Clint, First Name: Bill, Mailbox Number: 8050, Called DN: , and Calling DN: . The Start Date & Time is 5/2/99 11:23:15 AM and the End Date & Time is 5/2/00 11:23:15 AM. The Last Search Time is 11:26:30 AM. The Search button is visible.

Session Type	Start Time	End Time
Logon OK	15:37:14 Apr 28	15:38:40 Apr 28
MWI Off	15:38:41 Apr 28	15:38:41 Apr 28
Logon OK	15:39:40 Apr 28	15:40:09 Apr 28
MWI Off	15:40:10 Apr 28	15:40:10 Apr 28
Call Answering	15:42:30 Apr 28	15:42:40 Apr 28
MWI On	15:42:40 Apr 28	15:42:40 Apr 28
Logon OK	15:42:47 Apr 28	15:43:56 Apr 28
MWI Off	15:43:11 Apr 28	15:43:11 Apr 28
MWI Off	15:43:57 Apr 28	15:43:57 Apr 28
Call Answering	15:46:48 Apr 28	15:46:53 Apr 28
MWI On	16:56:24 Apr 28	16:56:24 Apr 28
MWI On	01:30:13 Apr 29	01:30:13 Apr 29
Expired Messages	03:30:09 Apr 29	03:30:09 Apr 29

Session Type: Call Answering

Start Time: 15:42:30 Apr 28 Message Length: 1 second
End Time: 15:42:40 Apr 28 Message Disposition: Message left
Session Length: 10 seconds
Called DN: 8050
Calling DN: 8051
Call Origination: Inbound

43 records found

Expired messages session type information

MCE Session Trace

File View Help

Session Type: All Session Types

Last Name: Clint

First Name: Bill

Mailbox Number: 8050

Called DN:

Calling DN:

Start Date & Time: 5/2/99 11:23:15 AM

End Date & Time: 5/2/00 11:23:15 AM

Last Search Time: 11:26:30 AM

Search

Session Type	Start Time	End Time
Logon OK	15:37:14 Apr 28	15:38:40 Apr 28
MWI Off	15:38:41 Apr 28	15:38:41 Apr 28
Logon OK	15:39:40 Apr 28	15:40:09 Apr 28
MWI Off	15:40:10 Apr 28	15:40:10 Apr 28
Call Answering	15:42:30 Apr 28	15:42:40 Apr 28
MWI On	15:42:40 Apr 28	15:42:40 Apr 28
Logon OK	15:42:47 Apr 28	15:43:56 Apr 28
MWI Off	15:43:11 Apr 28	15:43:11 Apr 28
MWI Off	15:43:57 Apr 28	15:43:57 Apr 28
Call Answering	15:46:48 Apr 28	15:46:53 Apr 28
MWI On	16:56:24 Apr 28	16:56:24 Apr 28
MWI On	01:30:13 Apr 29	01:30:13 Apr 29
Expired Messages	03:30:09 Apr 29	03:30:09 Apr 29

Session Type: Expired Messages

Date And Time: 03:30:09 Apr 29

Messages Deleted: 0

43 records found

NUM

Express Messaging session type information

Session Type: Express Messaging

Start Time: Static

End Time: Static

Session Length: Static

Called DN: 123456789012345678901234567890

Calling DN: Static

Call Origination: Static

Message Length: Static

Message Type: Static

Message Disposition: Static

Logon OK session type information

MCE Session Trace

File View Help

Session Type: All Session Types

Last Name: Clint

First Name: Bill

Mailbox Number: 8050

Called DN:

Calling DN:

Start Date & Time: 5/2/99 11:23:15 AM

End Date & Time: 5/2/00 11:23:15 AM

Last Search Time: 11:26:30 AM

Search

Session Type	Start Time	End Time
Logon OK	15:37:14 Apr 28	15:38:40 Apr 28
MWI Off	15:38:41 Apr 28	15:38:41 Apr 28
Logon OK	15:39:40 Apr 28	15:40:09 Apr 28
MWI Off	15:40:10 Apr 28	15:40:10 Apr 28
Call Answering	15:42:30 Apr 28	15:42:40 Apr 28
MWI On	15:42:40 Apr 28	15:42:40 Apr 28
Logon OK	15:42:47 Apr 28	15:43:56 Apr 28
MWI Off	15:43:11 Apr 28	15:43:11 Apr 28
MWI Off	15:43:57 Apr 28	15:43:57 Apr 28
Call Answering	15:46:48 Apr 28	15:46:53 Apr 28
MWI On	16:56:24 Apr 28	16:56:24 Apr 28
MWI On	01:30:13 Apr 29	01:30:13 Apr 29
Expired Messages	03:30:09 Apr 29	03:30:09 Apr 29

Session Type: Logon OK

Start Time: 15:42:47 Apr 28 Session Length: 69 seconds

End Time: 15:43:56 Apr 28 Call Origination: Inbound

Called DN: 3751

Calling DN: 8051

Message Lengths (Seconds)

	min	max	total
Voice:	0	0	0
Fax:	0	0	0

Start Of Session

Total Msgs: 1

Unread Msgs: 1

During Session

New Read: 1

New Arrived: 0

End Of Session

Total Msgs: 0

Sent: 0

Replied: 0

Time Delivered: 0

Unread Msgs: 0

Composed: 0

Forwarded: 0

Total Deleted: 1

New Deleted: 0

43 records found

NUM

Selective Restore session type information

Session Type: Selective Restore

Start Time: Static

End Time: Static

Session Length: Static

Start Of Session

Total Msgs: Static

Unread Msgs: Static

End Of Session

Total Msgs: Static

Unread Msgs: Static

During Session

Total Msgs Restored: Static

Unread Msgs Restored: Static

PDLs Restored: Static

System Information

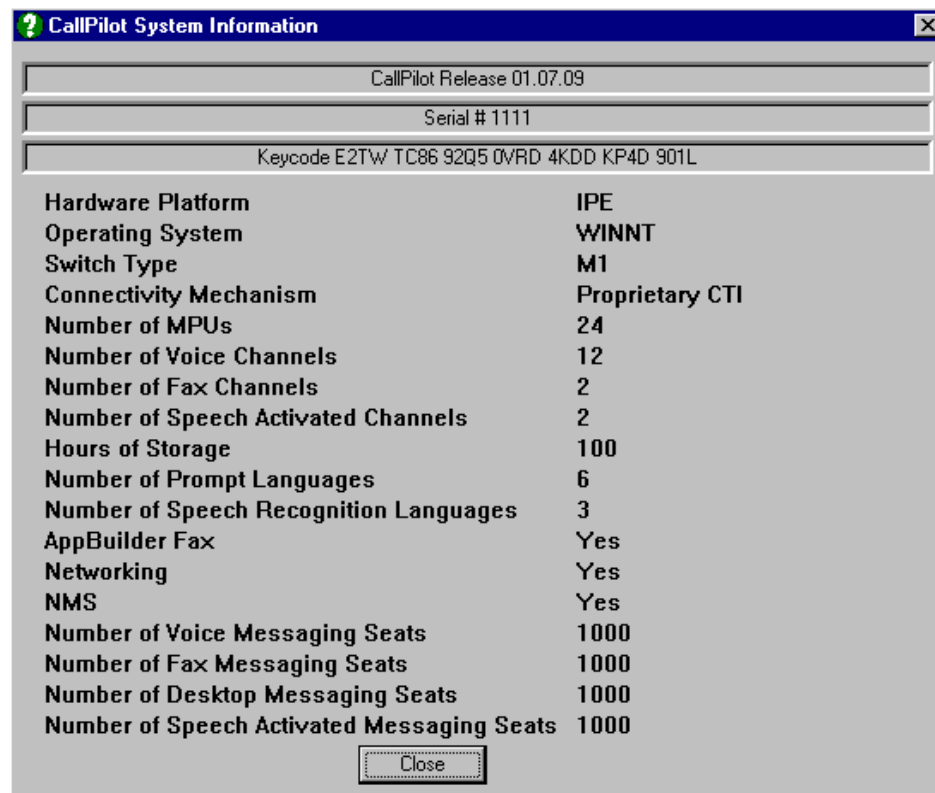
Introduction

The System Information utility displays particulars about the CallPilot system, such as names, keycodes, serial numbers, IP addresses, and system numbers.

To access the System Information utility

From the Windows Start menu, choose Programs > CallPilot > System Utilities > System Information.

Result: The CallPilot System Information window appears.



To use the System Information utility

Use this utility to view CallPilot system information at a glance.

After viewing the information on this window, click Close.

System Monitor

Introduction

The System Monitor provides a single point of view of CallPilot call processing status at any time. The status provided reflects the true internal status of the Call Processing subsystem, including all related call processing components. This eliminates the need to use multiple tools to get the same information.

The System Monitor queries the current status of each component it is monitoring and displays them in a graphical user interface. The status of each service is obtained from the Windows NT Service Controller; Middleware Components status are obtained from the CT Media server; and the DSP and Call channels status are obtained by querying Middleware.

This tool shows the status of

- CallPilot Critical Services related to call processing
- CT Media-based Middleware Services
- CallPilot Call Channels and Media Channels

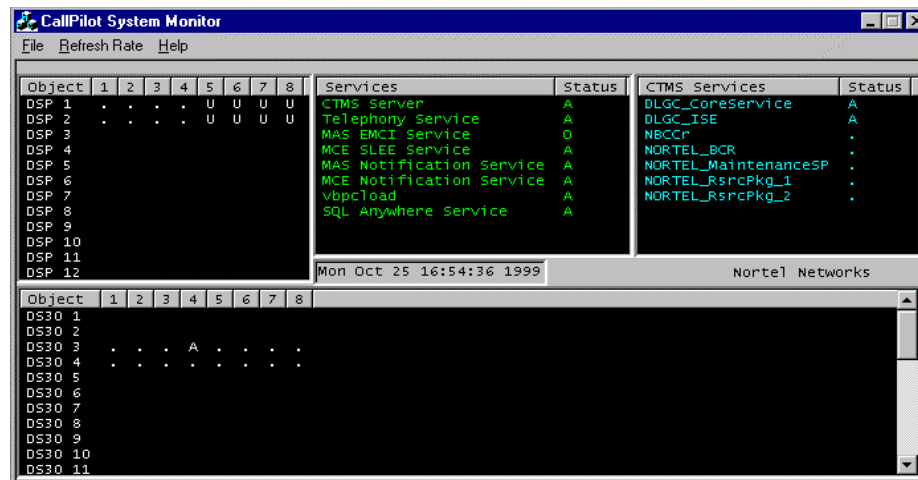
System Monitor is a nondestructive tool that does not alter the behavior of any CallPilot components.

Note: Users of this tool require an understanding of CallPilot and the components they want to monitor.

To access the System Monitor

From the Windows Start menu, choose Programs > CallPilot > System Utilities > System Monitor.

Result: The CallPilot System Monitor window appears.



User interface

The user interface comprises the four main areas listed below. Each area indicates the status of the particular components of the CallPilot server:

1. Services Area for Critical Windows NT-based services
2. CT Media Services Area for Middleware-based services
3. Call Channel Area for Call Arrival/Departure activities
4. Media Channel Area for DSP channel usage activities

CallPilot Critical Services

Critical Services needed for CallPilot Call Processing include

- CT Media Server Service
- Telephony Server (TAPI) Service
- MAS EMCI Service
- MAS Notification Service
- MCE SLEE Service
- MCE Notification Service
- SQL Anywhere Service
- VBPC Load Service (useful in a DSE system)

CT Media-based Middleware Services

Middleware resources needed for CallPilot include

- Dialogic CT Media Server Core Service
- Dialogic CT Media Server ISE Service
- Call Channel Resource Service
- Blue Call Router Service
- Media Resource Service
- Maintenance Service Provider Service

CallPilot Call Channels and Media Channels

Call and media channels needed for CallPilot include Multimedia Ports and Call Channel (DSP channel usage as well as Call Channel usage).

Online Help

To obtain a description of the various status codes for each of the window's components, use the online Help.

Menu items

The System Monitor tool provides several menu items for configuration:

File	Closes the tool.
Refresh rate	Changes the refresh rate to a desired level.
Help	Displays a legend for each status symbol shown.

Chapter 5

Performing hardware maintenance and mechanical assembly

In this chapter

Overview	110
Section A: Preparing for server maintenance	111
Shutting down the server	112
Removing the server from the switch	113
Replacing the server	114
Section B: Replacing components	115
Overview	116
Replacing the IDE hard drive	120
Replacing the software feature key	127
Replacing Multimedia Processing Cards	129

Overview

Introduction

This chapter describes how to perform hardware maintenance and upgrade procedures.

Preparing for server maintenance

The first section, “Preparing for server maintenance,” provides procedures you must follow before you replace a component or perform an upgrade activity. These are the first steps in working with the server.

Replacing components

The second section, “Replacing components,” provides procedures associated with field service.

Section A: Preparing for server maintenance

In this section

Shutting down the server	112
Removing the server from the switch	113
Replacing the server	114

Shutting down the server

Introduction

You prepare the 201i server for removal from the switch by shutting down the software. Before you shut down the 201i server, ensure that all clients are logged off.

The server is powered automatically by the switch when it is locked into position on an IPE shelf. The server, therefore, powers off when it is removed from the switch.

Equipment required

You need a keyboard, monitor, and mouse to perform a server shutdown.

To perform a software shutdown

- 1 Connect the keyboard, monitor, and mouse to the server.
- 2 Log on to the server.
- 3 Close all applications.

Note: Applications that you do not close are automatically closed when you perform the Windows NT shutdown.

- 4 In Windows NT Server 4.0, click Start.
- 5 Select Shut Down.
- 6 When the Shut Down Windows dialog box appears, do the following:
 - a. Click Shut down the computer?
 - b. Click Yes.

Result: You might also be asked if you want to save ACD proxy changes.

- 7 Click No.

Result: The 201i server shutdown begins.

- 8 Wait for one or both of the following to appear:

- DOWN on the hex display
- the message `It is now safe to turn off your computer.`

Note: The red LED power status indicator remains lit during the shutdown until the system is restarted.

Removing the server from the switch

Introduction

You must remove the server from the switch before you replace the following components:

- hard drive
- software feature key

Note: You can replace an MPC-8 card without powering down the 201i server.

Equipment required

The following equipment is required for this procedure:

- antistatic mat
- antistatic wrist strap

To remove the server from the switch

- 1 Shut down the server.
- 2 Turn off the monitor.
- 3 Disconnect the monitor, keyboard, and mouse.
- 4 Power down the peripheral SCSI devices.
- 5 Disconnect the SCSI cable (if connected).
- 6 Open the lock latches at the top and bottom of the server.
- 7 Grip the faceplate, and then pull the server out of the IPE shelf.
- 8 Place the server on a clean, static-resistant surface.

What's next?

Replace and upgrade components as required.

Replacing the server

Introduction

For activities that are not supported as field procedures, you must return the server to Nortel Networks for service. To maintain customer service, a replacement server must be installed on-site.

All procedures required to replace the 201i server are covered in detail in this guide.

This section summarizes the procedure for replacing the server. References are made to specific component replacement procedures where applicable.

To replace the server

- 1** If the installed server is functional, perform a complete backup of the hard disk as a precautionary measure.
- 2** Use the administration client application to take any installed MPC-8 cards out of service.
- 3** Remove the MPC-8 cards from the faceplate of the server (see page 129).
- 4** Shut down the installed server (see page 112).
- 5** Power down and disconnect all peripherals from the server.
- 6** Remove the server from the switch (see page 113).
- 7** Remove the software feature key from the defective server and install it in the replacement server as shown on page 127.
- 8** Remove the hard drive from the defective server and install it in the replacement server as shown on page 122.
- 9** Install the replacement server on the switch and then reconnect the peripherals.
- 10** Install the MPC-8 cards removed from the defective server as shown on page 133.
- 11** Boot the server to Windows NT.
- 12** Run the Configuration Wizard to configure the new hardware.

For instructions, see Part 3 of this binder.

Section B: Replacing components

In this section

Overview	116
Replacing the IDE hard drive	120
Replacing the software feature key	127
Replacing Multimedia Processing Cards	129

Overview

Introduction

Before you can begin component replacement, you must do the following:

- Gather the tools you need.
- Remove the 201i server from the switch.
- Become familiar with component layout on the 201i server.

Equipment required

You need the following tools, based on the component you are replacing:

- antistatic wrist strap
- Phillips No. 1 and No. 2 screwdrivers
- tweezers

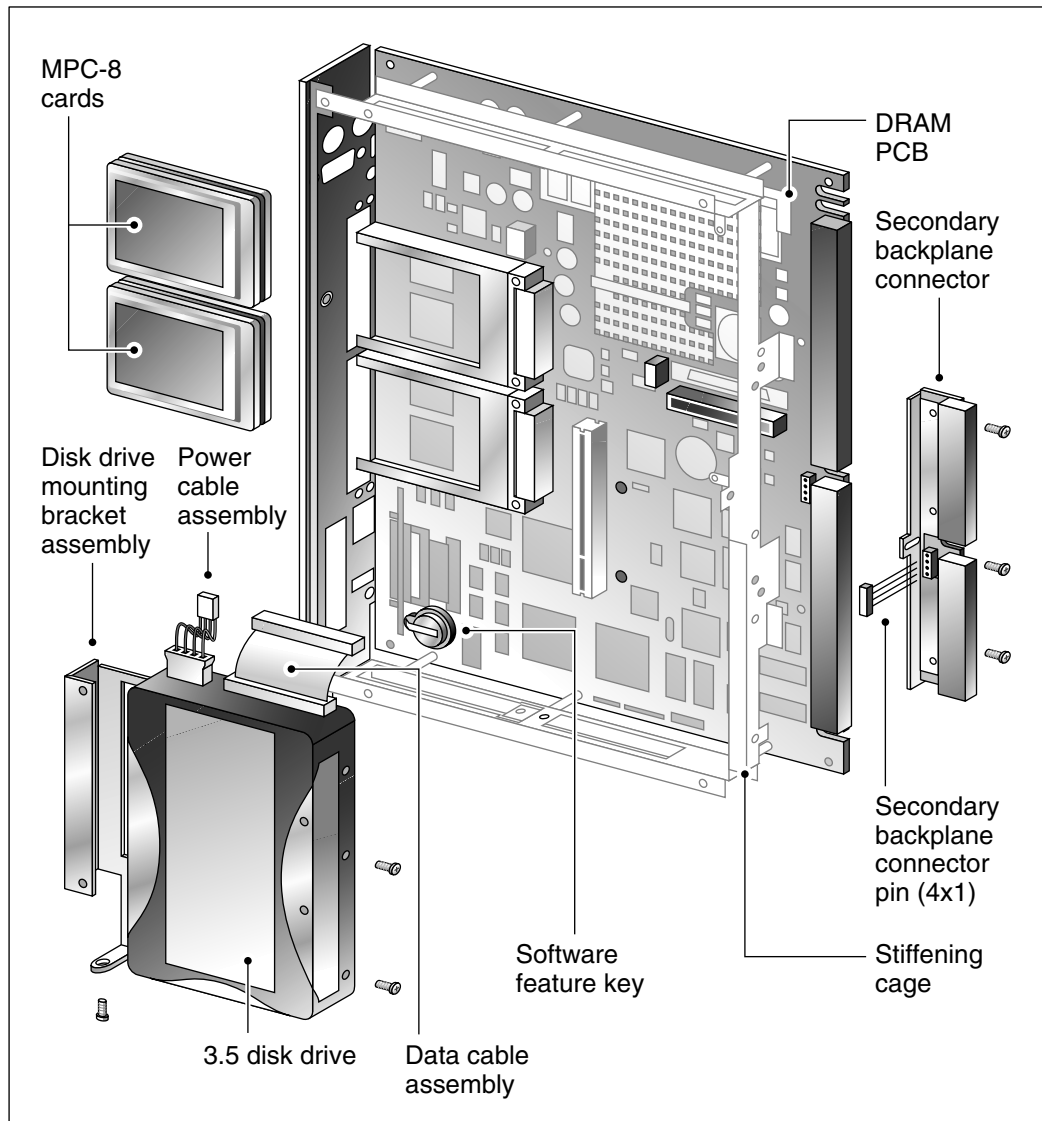
Before you begin

Remove the server from the switch and lay it on a static-resistant surface, with the component side facing up. For instructions, see page 113.

If you need to replace the entire 201i server, review “Replacing the server” on page 114. Then review the procedures for installing the server and conducting diagnostic tests.

201i server component diagram: exploded view

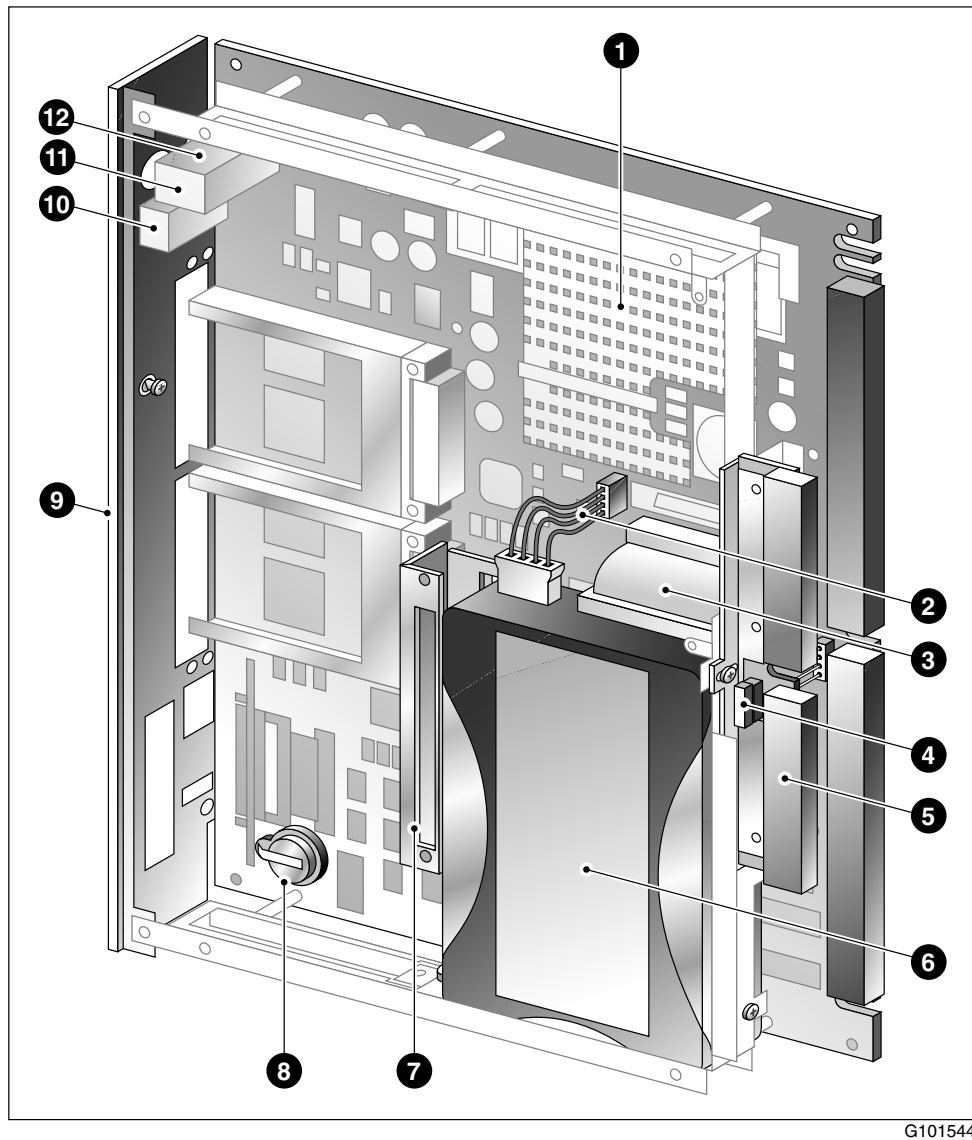
The following diagram identifies component locations on the 201i server:



G101437

201i server component diagram: complete assembly

The following diagram shows the 201i server when it is completely assembled:



Legend

Item	Description
1	Heat sink
2	Hard drive power cable
3	Hard drive data cable
4	Secondary backplane connector pin

Item	Description
5	Secondary backplane connector
6	3.5" IDE hard drive
7	Hard drive mounting bracket
8	Software feature key
9	Faceplate
10	Monitor connector
11	Mouse connector
12	Keyboard connector

Replacing the IDE hard drive

Introduction

The hard drive rests lengthwise along the backplane side of the server. The hard drive is secured in place by five screws, two on the backplane edge, two through the motherboard, and one through the bottom edge of the stiffener.

Equipment required

The following equipment is required for this procedure:

- antistatic wrist strap
- Phillips No. 1 screwdriver

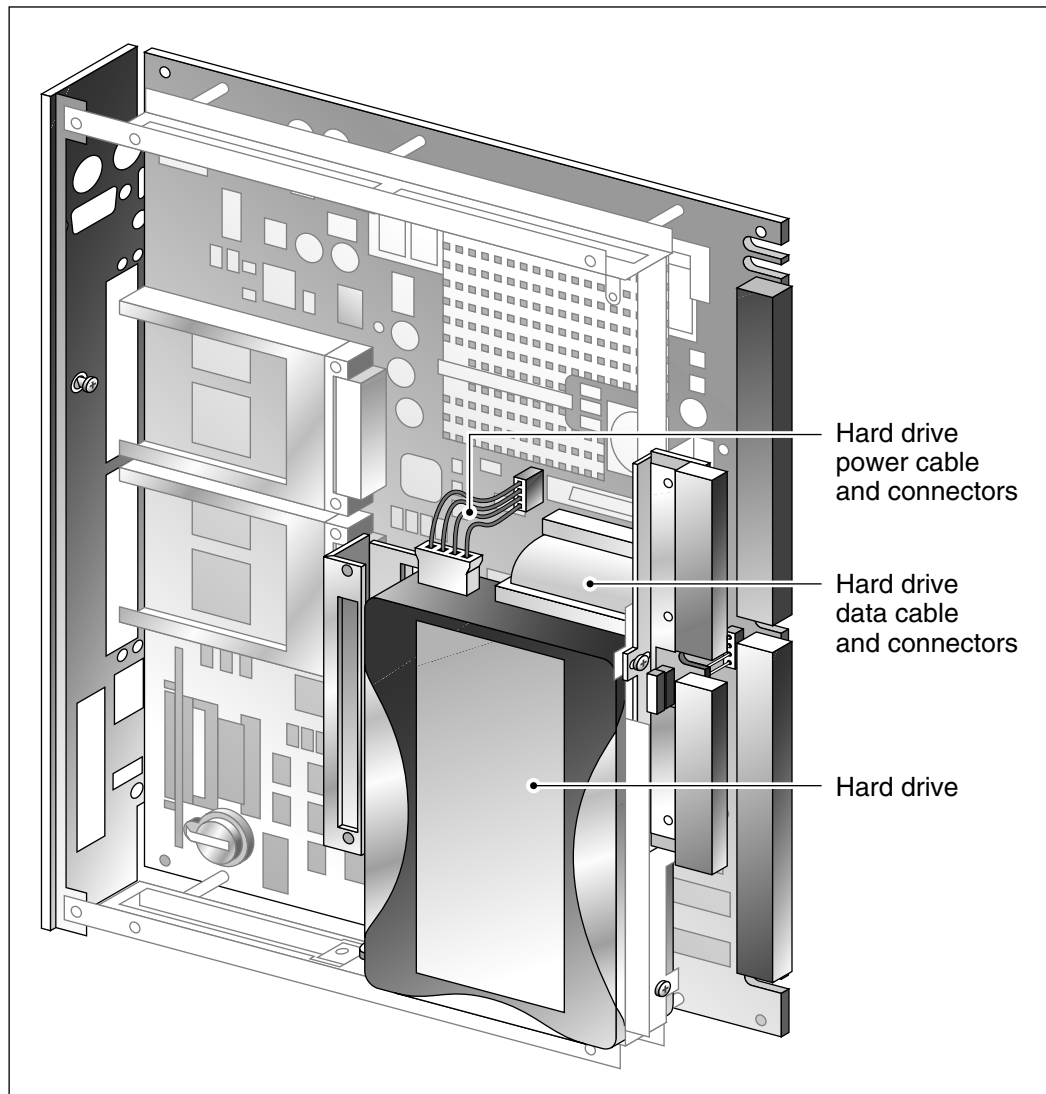
Before you begin

Before you replace the hard drive, review the following:

- “Removing the server from the switch” on page 113
- the “201i server component diagram: exploded view” on page 117

Hard drive assembly diagram

The following diagram shows the hard drive in its assembled state:

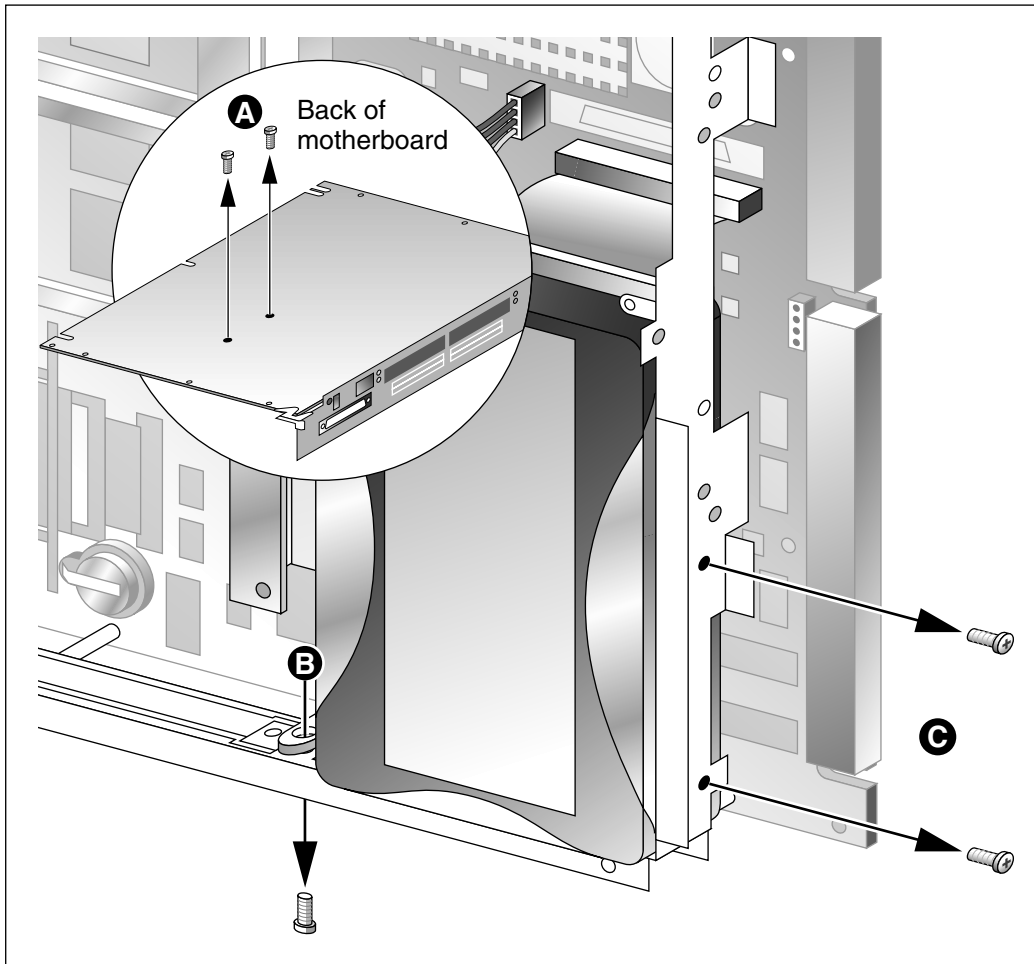


G101433

To remove the IDE hard drive

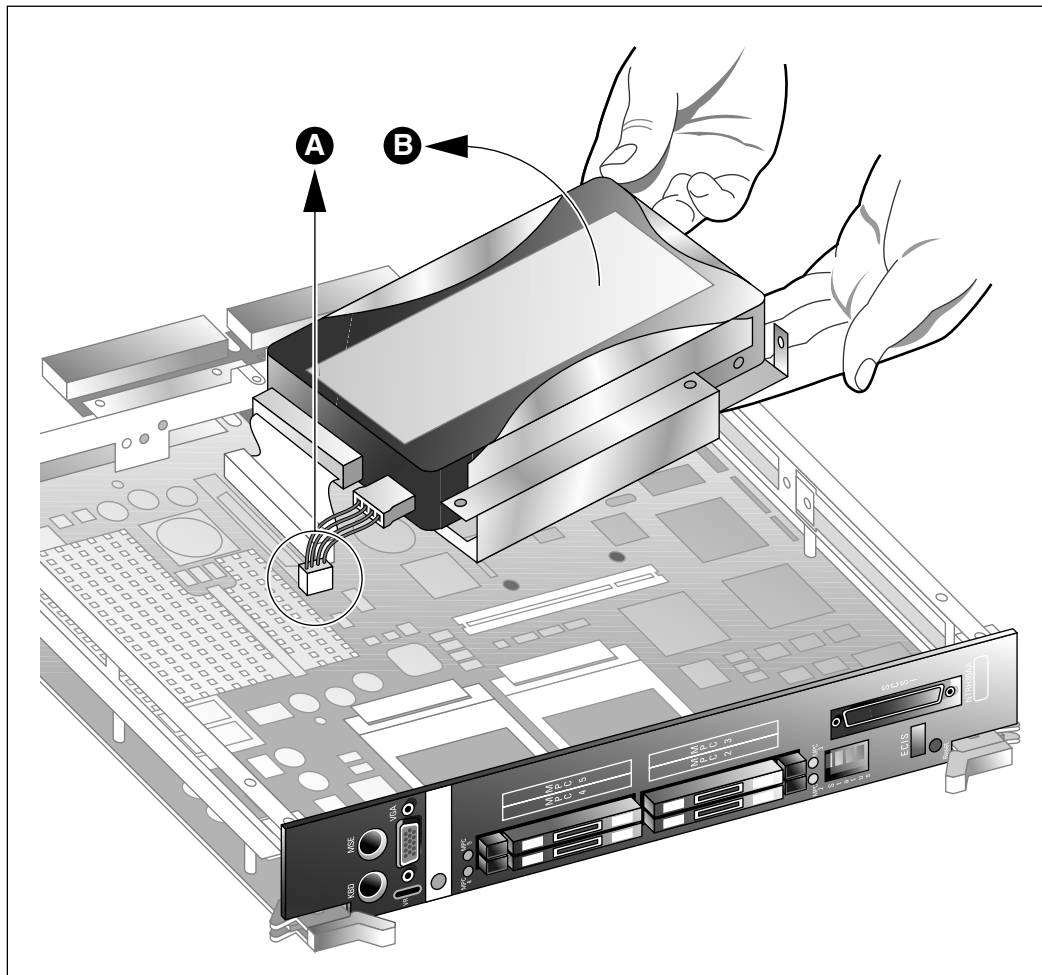
- 1 Do the following:
 - a. Remove the two screws on the back of the motherboard.
 - b. Remove the screw on the stiffening cage.
 - c. Remove the two screws on the hard drive's stiffener cage (along the backplane edge of the server).

See the following diagram:



G101446

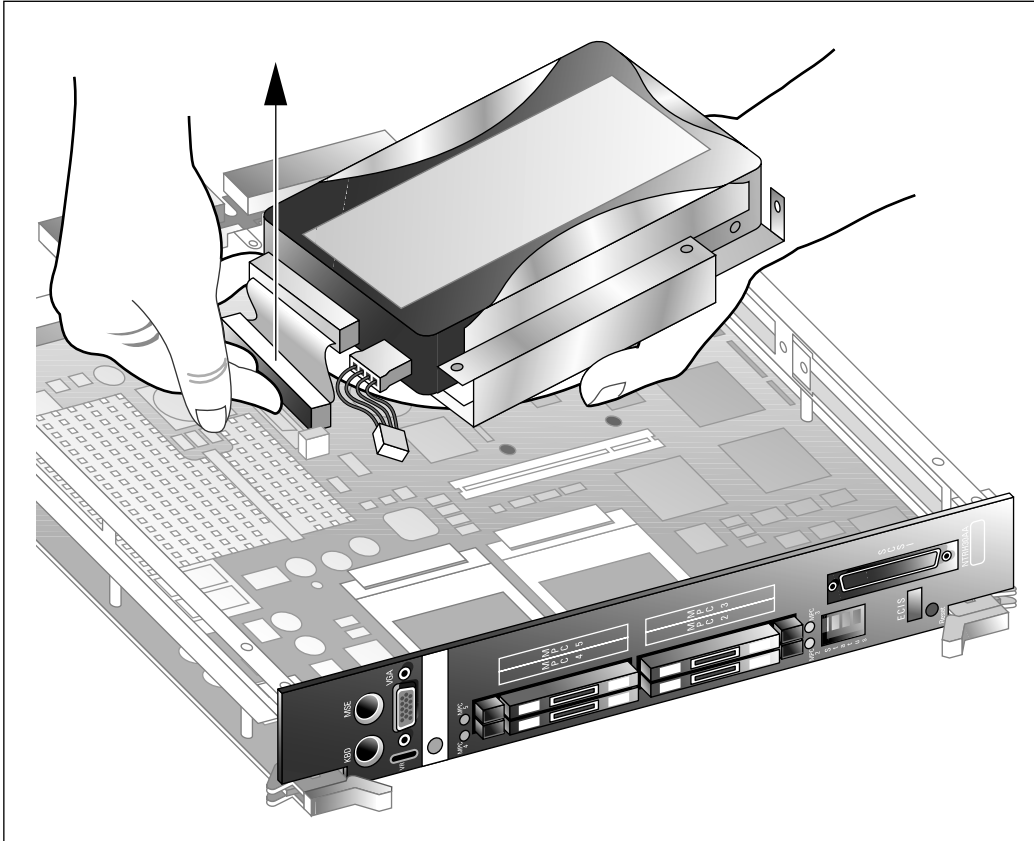
- 2** Do the following:
- Dislodge the power cable from its connector and lift it away from the motherboard.
 - Slide one hand as far as you can beneath the hard drive so that it is securely supported.
- Your fingers should touch the data cable connector on the motherboard.



G101447

- 3 Use the pull tabs to gently remove the data cable connector from the motherboard.

See the following diagram:

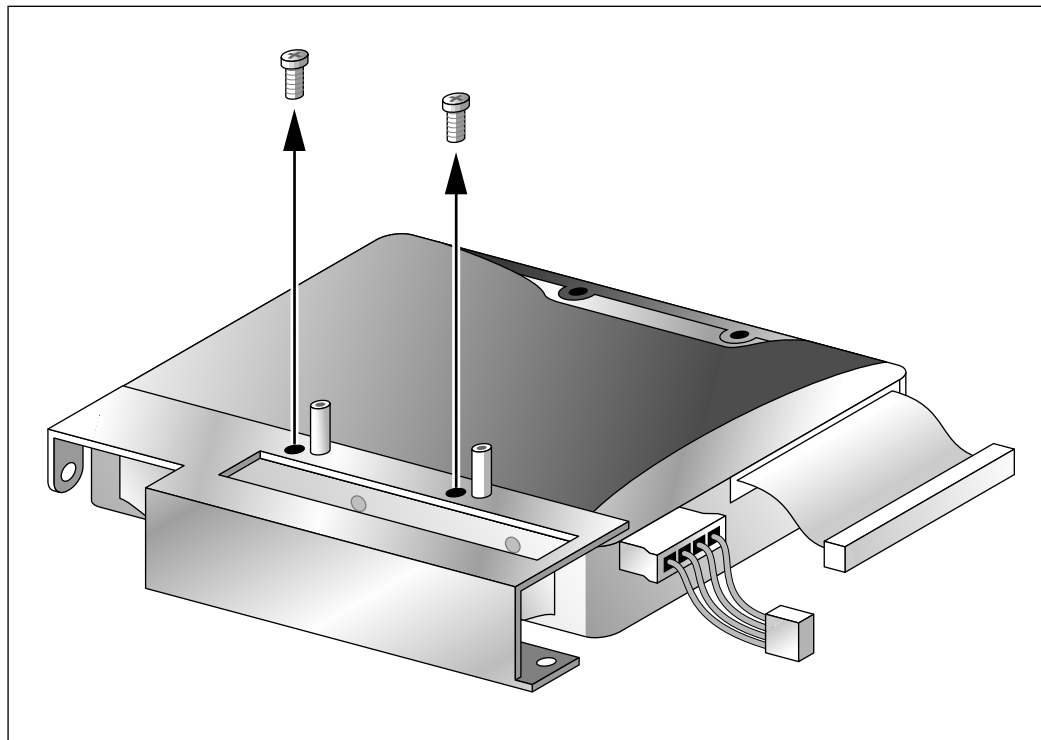


G101448

- 4 Lift the hard drive assembly away from the motherboard.
- 5 Do the following:

IF you are	THEN
replacing the hard drive with a new one	continue with step 6.
keeping the hard drive but replacing the 201i server	continue with “To install the hard drive” on page 125.

- 6 Detach the hard drive bracket by removing the two screws on the bottom of the hard drive assembly.



G101449

- 7 Remove the power and data cables from the hard drive.
- 8 Continue with "To install the hard drive" below.

To install the hard drive

- 1 If you are replacing the hard drive with a new one, do the following:
 - a. Attach the hard drive bracket to the new hard drive.
 - b. Attach the power and data cables to the new hard drive.
- 2 Connect the power and data cables to the 201i server motherboard.



CAUTION

Risk of equipment damage

Ensure the pins on the data connector on the motherboard line up correctly with the data cable connector.

When the data cable connector is correctly aligned with the connector on the motherboard, press firmly down until the connector is properly seated.

- 3 Position the hard drive assembly in the server.

Align the hard drive's bracket over the PCI connector on the motherboard, and then lower the assembly into position.

Note: The PCI connector on the motherboard is reserved for future use.

- 4 Align the drive with the screw holes.
- 5 Replace and tighten the screws.

ATTENTION

The five screws you removed earlier are two different sizes. The three smaller screws belong to the back of the motherboard and the bottom edge of the motherboard's stiffener cage (see steps 1a and 1b on page 122).

The two larger screws belong to the hard drive's stiffener cage (along the backplane edge of the server) (see step 1c on page 122).

What's next?

Review the procedures for installing the server and conducting diagnostic tests.

Replacing the software feature key

Introduction

The software feature key is a software security device. This key stores the unique serial number of the server.

Equipment required

The following equipment is required for this procedure:

- Phillips No. 1 screwdriver
- tweezers

Before you begin

Before you replace the software feature key, review “Removing the server from the switch” on page 113.

Software feature key location

To determine where the software feature key is located, see the “201i server component diagram: exploded view” on page 117.

To replace the software feature key

- 1 Lift the clip holding the software feature key to the motherboard.



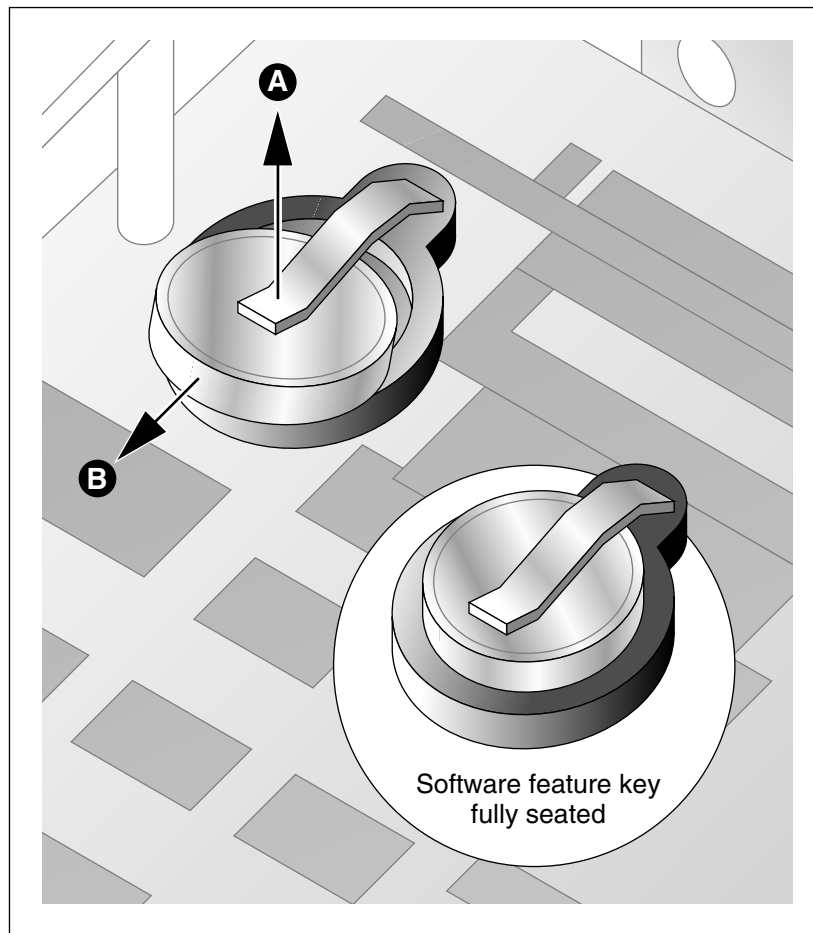
CAUTION

Risk of of equipment damage

Ensure that you do not bend the clip so that it can no longer apply downward pressure.

- 2 Use the tweezers to pull the software feature key out of the socket.
- 3 Insert the software feature key into the socket on the replacement motherboard, lip side up.

When the software feature key is correctly installed, it is firmly seated in its socket. See the following diagram:



G101539

Replacing Multimedia Processing Cards

Introduction

The Nortel Networks MPC-8 card supports multimedia telephony services on the 201i server. Four specially designed card slots are available for the MPC-8, and are located on the 201i server faceplate.

Note: The 201i server motherboard contains one built-in MPC. This MPC is known as MPC 1.

Supported MPC-8 card versions

The 201i server supports MPC-8 cards, Release 14 or later.

What the MPC-8 card looks like

The following is a diagram of the MPC-8 card:



G101540

Correct card insertion

The MPC-8 card is keyed so that it fits only one way into the slot on the 201i server faceplate. If the card is inserted incorrectly, the card does not go all the way into the slot.



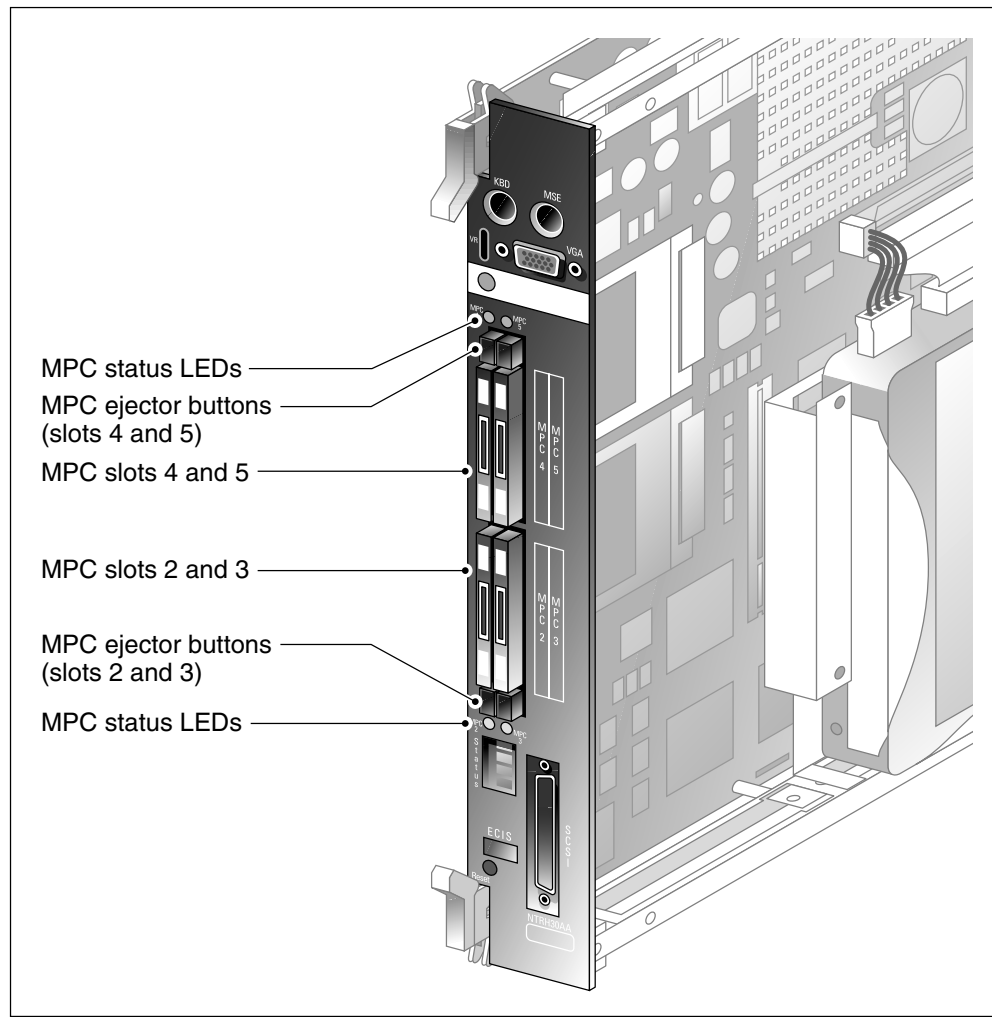
CAUTION

Risk of equipment damage

If you force the card into the slot incorrectly, this can result in damage to the MPC-8 card and the 201i server.

Location of MPC slots

There is an ejector button, slot, and LED for each MPC. The following diagram shows where they are located on the 201i server:



G101440

The following table describes each LED status:

Status	Description
Off	The MPC is not receiving power. It is safe to remove the card.
On	The MPC is in use. In this case, it is <i>not</i> safe to remove the card.
Off, then on	The MPC has been recognized by the 201i server software and has been powered up.
On, then off	The MPC has been successfully powered down. It is safe to remove the card.

To remove an MPC

ATTENTION

You can replace an MPC-8 card without powering down the 201i server. You must, however, power down the MPC-8 card using the administration client software (as described in this procedure) before you remove it from the server.

ATTENTION

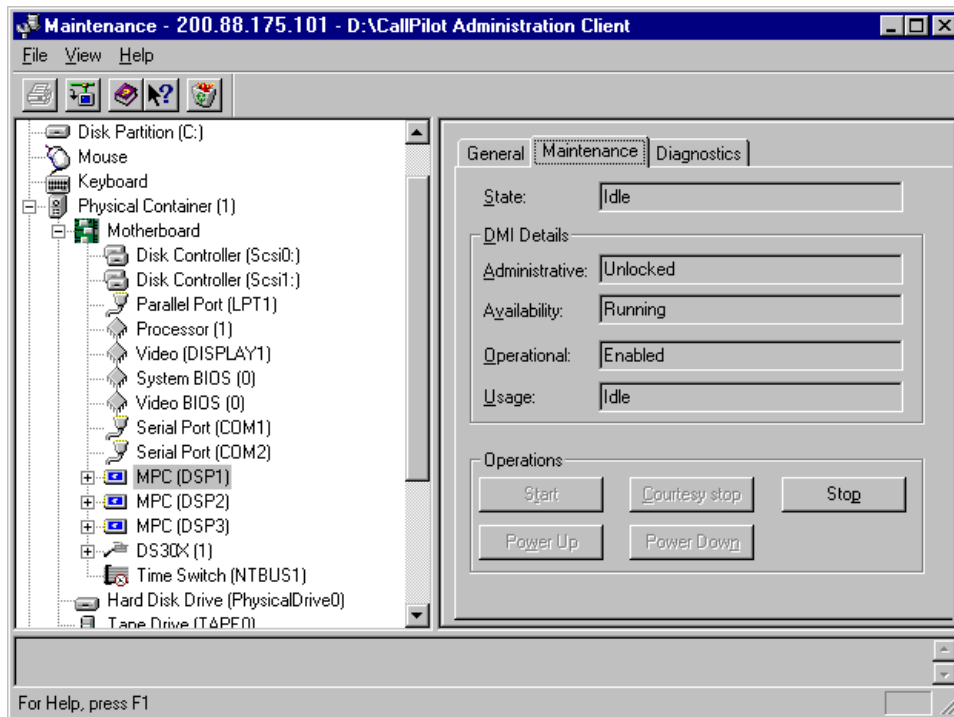
This procedure assumes that the 201i server is locked into position on the IPE shelf. If it is not, perform steps 8 and 9 only.

- 1 On the administration client PC, log on to the CallPilot system.
- 2 Open the CallPilot Administration Client window, and click System Administration > Maintenance Administration > Maintenance.
- 3 In the left pane of the Maintenance window, select the MPC-8 card you want to replace.

Result: The General page appears.

- 4 In the right pane, click the Maintenance tab.

Result: The Maintenance page appears.



- 5 Click Courtesy stop or Stop.

Result: The MPC-8 card changes to an Off Duty state.



CAUTION

Risk of data loss

If you select Stop, the selected MPC-8 card is immediately placed out of service.

- 6 Click Power Down.

Result: The MPC-8 card is powered off.

- 7 Ensure that the MPC's LED on the 201i server faceplate is not lit, which indicates that the MPC is no longer receiving power.



CAUTION

Risk of equipment damage

If you remove an MPC while it is receiving power, this can damage the MPC or the 201i server.

- 8 Firmly press the MPC's ejector button to dislodge the MPC from its slot.
The ejector button is on the 201i faceplate underneath the MPC slot. There is one ejector button for each MPC slot.



CAUTION

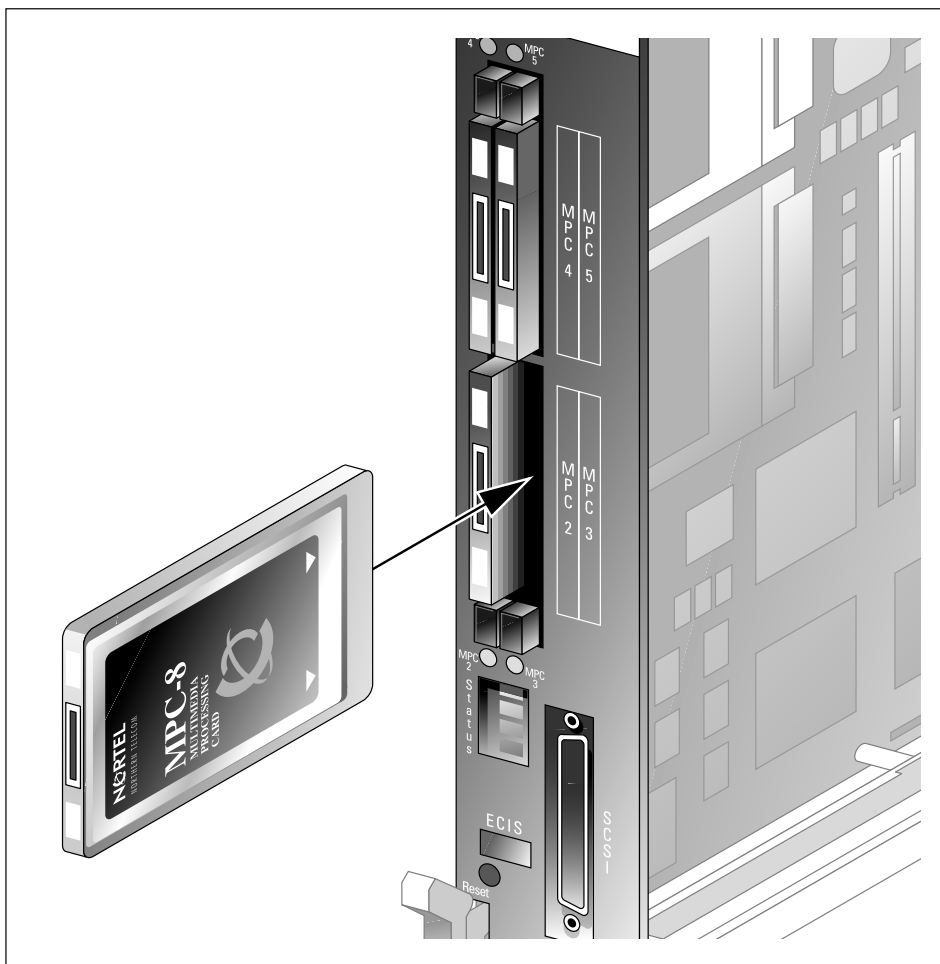
Risk of equipment damage

It is possible for the MPC to eject suddenly and fall to the floor if you are not ready.

- 9 Pull the MPC out of its slot.

To install an MPC-8 card

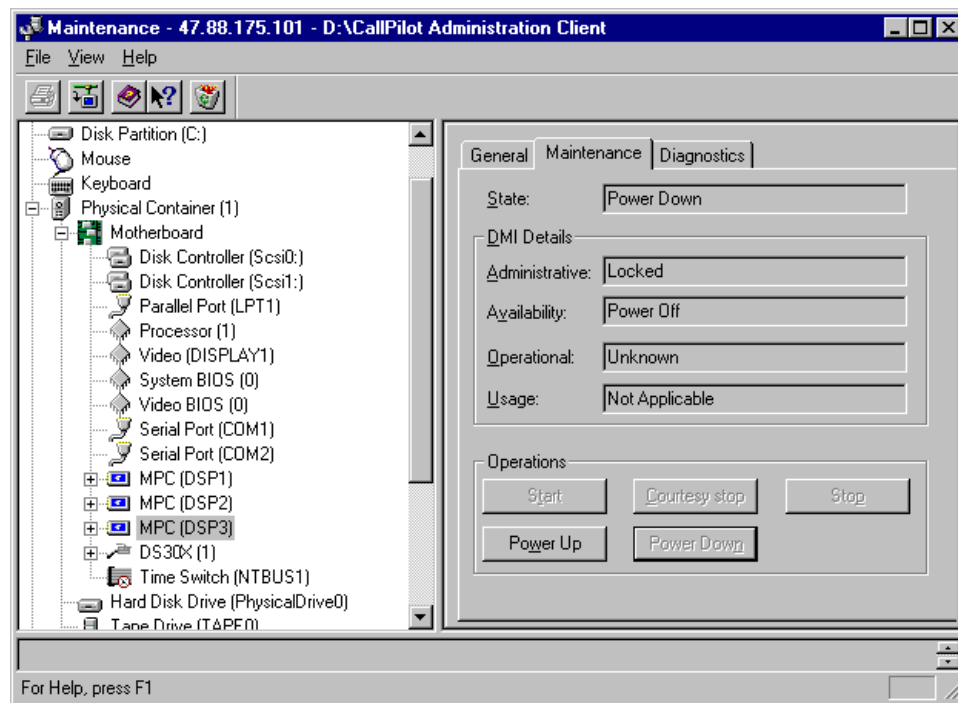
- 1 Ensure that the MPC-8 card label is facing one of the following ways:
 - facing to the right if the 201i server is inserted into the IPE shelf (see the following diagram):



G101541

- facing up if the 201i server is lying horizontally on a flat surface

- 2 Insert the card into the slot, and gently push it until it is firmly in place and the ejector button pops back out.
- 3 Ensure that the MPC's LED lights up green.
- 4 Enable the card and its channels.
- 5 Ensure that the new MPC-8 card is highlighted in the left pane of the Maintenance window.



- 6 Click Power Up.
Result: The MPC-8 card powers up.
- 7 Click Start.
Result: The MPC-8 card changes to an Idle state and is now operational.

Chapter 6

Expanding CallPilot features

In this chapter

Expanding features or channels

136

Expanding features or channels

Introduction

This chapter summarizes how you add features or configure additional channels to CallPilot.

CallPilot does not support feature reduction other than for channels that have been previously allocated.

Requirements

Have your new keycode available. When you purchase additional features or system capacity, you receive a new keycode.

Expansions

CallPilot supports the expansion of features (such as number of channels or networking sites).

To add features or configure additional channels

If you have purchased additional features or system capacity (additional channels), then do the following:

- 1** Install the software feature key, if a new one was shipped to you.
A new software feature key is supplied when the serial number is changed. See “To replace the software feature key” on page 127.
- 2** Run the Configuration Wizard (refer to Part 3 of this binder). In the Configuration Wizard, ensure you do the following:
 - a.** Enter the new keycode and serial number.
 - b.** Allocate new channels (if you have added channels).

ATTENTION

New channels are not automatically allocated. You must manually allocate them using the Configuration Wizard.

- c.** Configure additional channels on the switch and in the Configuration Wizard.

Chapter 7

Recovering from corrupted software or a hard drive failure

In this chapter

Overview	138
Reinstalling languages	139
Recovering from corrupted software (hard drive is functioning)	140
Recovering from a hard drive failure	145

Overview

Introduction

If the 201i server hard drive crashes, or if software becomes corrupt, then you must either reinstall the software or rebuild the hard drive. The descriptions below can help you decide if you need to perform a new installation, reinstallation, or hard drive recovery.

Reinstalling languages

If only the language prompts are not functioning (for example, no prompts are played when you log on), then you can reinstall languages to try to fix the problem. See “Reinstalling languages” on page 139.

Recovering from corrupted software (hard drive is functioning)

If, for example, the hard drive is functioning but the CallPilot software appears to be corrupted, you can reinstall the CallPilot server software. This might correct the problem. See “Recovering from corrupted software (hard drive is functioning)” on page 140. If it does not correct the problem, then you need to rebuild the hard drive.

Recovering a CallPilot system from a hard drive failure

IF your CallPilot system is	THEN
a new CallPilot system (for example, the system failure occurs before or during CallPilot installation)	follow the procedures in “Installing the operating system and server software” on page 147 to install a new CallPilot system. These procedures explain how to erase all existing data on the server and reinstall the operating system.
a CallPilot system that is already in operation and backup tapes are available	follow the steps in “Recovering from a hard drive failure” on page 145.

Reinstalling languages

Introduction

If only the language prompts are not functioning, then you can reinstall languages to try to fix the problem.

ATTENTION

If you encounter problems when reinstalling the language prompts, contact your Nortel Networks customer support representative.

Requirements

To reinstall languages, you need the CallPilot Language CD-ROM.

To reinstall languages

- 1 Log on to the CallPilot server.
- 2 Run the Configuration Wizard.
- 3 See steps 13 to 25 in “To reinstall the CallPilot server software” on page 140.

Recovering from corrupted software (hard drive is functioning)

Introduction

If the hard drive is functioning but the CallPilot software appears to be corrupted, you can reinstall the CallPilot server software. This might correct the problem. If it does not correct the problem, then you need to rebuild the hard drive (see “Recovering from a hard drive failure” on page 145).

The reinstallation procedure copies CallPilot program files from the CallPilot Server CD-ROM to a CallPilot system running the same version of CallPilot software as on the CD-ROM. This process does not affect system or user data. It neither removes nor corrects any system data or information. It recovers most CallPilot program files, but not the operating system, service pack, or, in the case of non-Meridian 1 systems, switch drivers.

ATTENTION

If you encounter problems when reinstalling the CallPilot software, contact your Nortel Networks customer support representative.

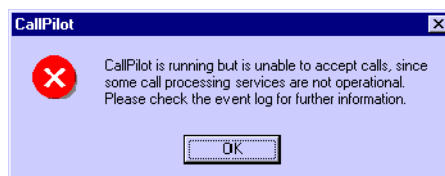
Requirements

To recover from corrupted software, you need the following items:

- the CallPilot Server CD-ROM that has the same version of CallPilot that is running on the CallPilot server
- the CallPilot Language CD
- the PEP CD

To reinstall the CallPilot server software

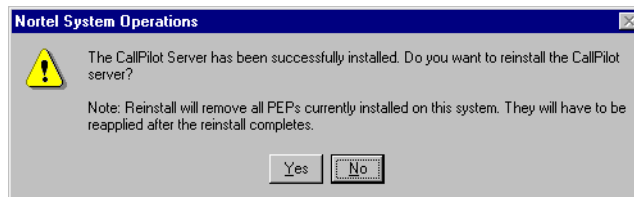
Note: During the reinstall, the following message might appear. If this message appears, click OK and continue with the reinstall:



- 1 Log on to the CallPilot server.
- 2 Insert the CallPilot Server CD-ROM.

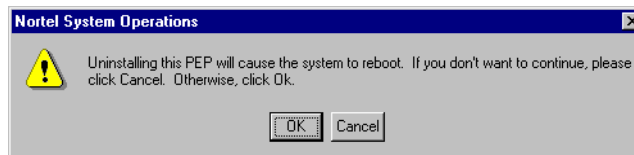
- 3 Run setup.exe from the root directory of the CallPilot Server CD-ROM.

Result: The following message appears:



- 4 Click Yes.

Result: If there are any PEPs on the system, the following message appears:

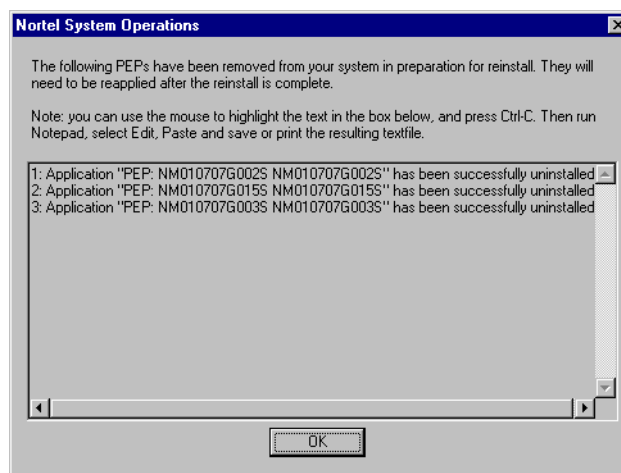


- 5 Click OK to uninstall PEPs.

Result: The first PEP is uninstalled.

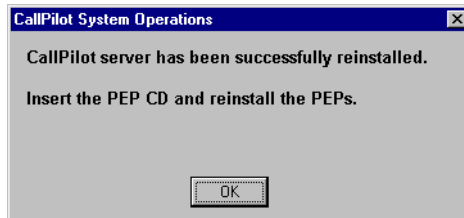
- 6 If there are more PEPs installed, the dialog box shown in step 4 appears again. For each PEP installed on the server, this dialog box appears. Each time, click OK to continue.

Result: After all PEPs have been uninstalled, a dialog box appears showing the PEPs that have been uninstalled.

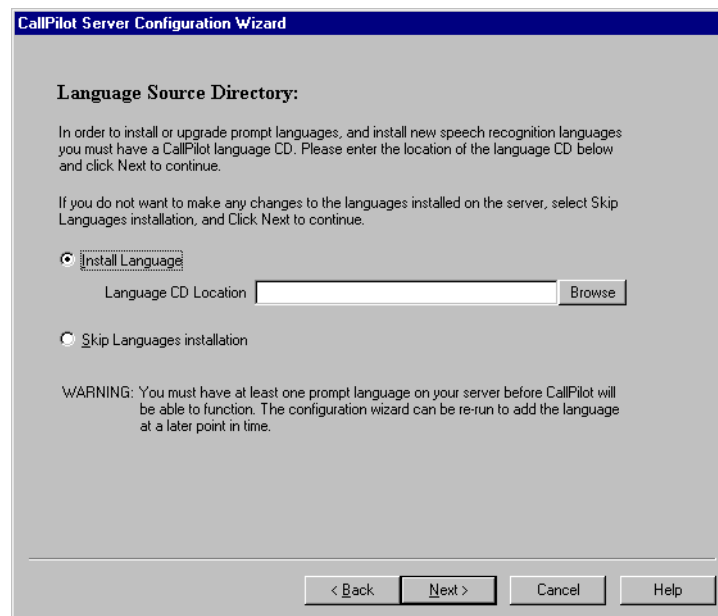


- 7 Click OK.

Result: Files are copied to the server as part of the reinstall procedure. This can take up to 10 minutes. This is followed by a dialog box prompting to reinstall PEPs (if any were present on CallPilot).



- 8 Insert the PEP CD-ROM.
- 9 Click OK to reinstall PEPs.
- 10 Follow the wizard instructions for installing the PEPs.
- 11 After all PEPs are reinstalled, restart the server when prompted.
- 12 After CallPilot has restarted, run the Configuration Wizard.
See Part 3 of this binder for instructions.
- 13 Leave all current values in the Configuration Wizard dialog boxes as they are until you reach the Language Source Directory dialog box shown here:

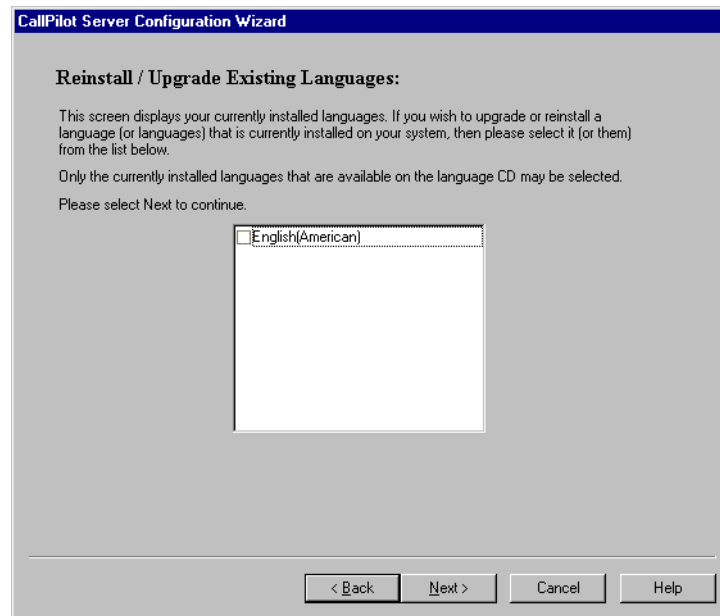


- 14 Insert the CallPilot Language CD.
- 15 Select Install Language.
- 16 Click Browse and select the CD-ROM drive.

Note: Select the root level of the CD-ROM. Do not select subfolders or files on the CD. For example, if the CD-ROM is drive Z:, just select Z:.

17 Click Next.

Result: The following dialog box appears, which lists all currently installed languages:



18 Select all the languages listed, and then click Next.

Result: The Add Prompt Language dialog box appears.

19 Click Next to skip this dialog box.

Result: The Primary and Secondary Languages dialog box appears.

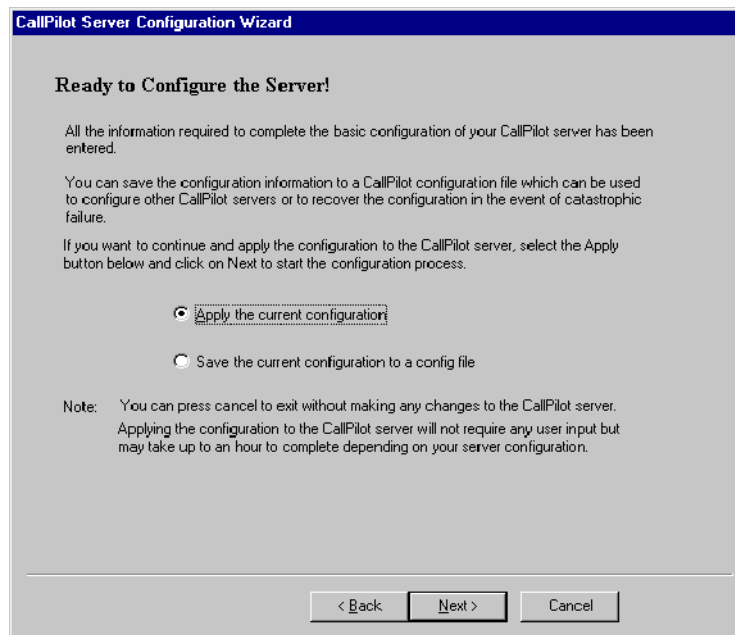
20 Click Next to accept the currently assigned primary and secondary languages.

Result: The Speech Recognition Languages dialog box appears.

21 Click Next to skip this dialog box.

Result: The language installation dialog boxes are completed.

- 22 Click Next through the remaining Configuration Wizard dialog boxes until the following dialog box appears:



- 23 Select Apply the current configuration, and then click Next.

Result: The configuration changes are applied to the server. This is followed by a prompt to restart to CallPilot.

Note: The configuration changes take approximately 10 minutes, plus an additional 10 minutes for each language you are reinstalling.

- 24 Click Finish. Then click OK to restart CallPilot.

Result: The CallPilot software reinstallation is done.

- 25 Test your CallPilot channels as described in Part 4 of this binder.

Recovering from a hard drive failure

Introduction

If this is a CallPilot system that is already in operation and backup tapes are available, then follow the steps in this section.

If this is a new CallPilot system (for example, the system failure occurs before or during CallPilot installation), then follow the steps in “Installing the operating system and server software” on page 147.

ATTENTION

If you encounter problems when recovering from a hard drive failure, contact your Nortel Networks technical support representative.

Requirements

To recover from a hard drive failure, you need the following items:

- all software media that came with the CallPilot system:
 - Windows NT 4.0 OS Recovery CD-ROM
 - Application Server Driver CD-ROM
 - CallPilot Server CD-ROM
 - CallPilot PEP CD-ROM
- a system backup (if available)

To recover from a hard drive failure

- 1 Replace the faulty hard drive.
See “Replacing the IDE hard drive” on page 120.
- 2 Follow the procedures in “Installing the operating system and server software” on page 147.
- 3 Configure the CallPilot server software. Follow the steps in Part 3 of this binder.
- 4 Log on to the CallPilot server as Administrator or any account that has local administrative privileges.
- 5 Insert the system backup tape.
- 6 Click Start > Programs > CallPilot > System Utilities > Support Tools.
- 7 Start up Tool Launcher.
- 8 Log on with the appropriate user ID to display the main menu.
- 9 Select Sysops Utilities from the main menu to display the Systems Operations Utilities menu.

- 10 Select Backup/Restore Command Line Utility to launch the restore utility.
Result: The message `Wait, Tool is launching...` appears once the system launches the Backup/Restore utility.
- 11 At the `Cl>` prompt, type **listtape**, and then press Enter to display a catalogue of all files on the backup tape.
Result: The system displays the prompt, "Device name: <Max. Len. = 100>:".
- 12 Type the name of the device from which the backup is to be restored, and then press Enter.
Result: The system displays the backup directory for the device.
- 13 Type **startrestore**, and then press Enter.
Result: The system displays the prompt, "Device name: <Max. Len. = 100>:".
- 14 Enter the name of the device from which the backup is to be restored, and then press Enter.
Result: The system displays the prompt, "Backup ID:".
- 15 Enter the entire backup file name, including the timestamp, as displayed in Step 12.
Result: The system begins to restore the data from the backup tape to the system.
- 16 At the `Cl>` prompt, type **status**, and then press Enter.
Result: The system displays the progress of the restore process, including the number of items, file size restored, and time to completion.
- 17 When the status shows as "Completed," press Enter to return to the `Cl>` prompt on the main menu.
- 18 Remove the system backup tape.
- 19 Select Start > Shut Down, and then select Restart to restart the restored system.

Chapter 8

Installing the operating system and server software

In this chapter

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Overview

Introduction

This chapter discusses how to install the CallPilot server software on a system that does not have backups and requires an install from scratch. The procedures here are also used to recover from a hard drive failure. (For additional information, see “Recovering from corrupted software or a hard drive failure” on page 137.)

Hardware and software requirements

You need the following items to perform a hard drive recovery and build:

- local SCSI CD-ROM drive
- appropriate SCSI cabling
- Windows NT 4.0 OS Recovery CD-ROM
- Application Server Driver CD-ROM
- CallPilot Server CD-ROM
- PEP CD-ROM
- Language Prompts CD-ROM set (3)

Note: You need the Language Prompts CD-ROMs when running the Configuration Wizard to configure CallPilot (see Part 3 of this binder).

Process overview

This chapter explains how to do the following:

1. Boot to ROM-DOS.
2. Erase and partition the hard drive.
3. Reformat the partition.
4. Prepare to install Windows NT from the CD-ROM via ROM-DOS.
5. Install Windows NT Server 4.0 and Service Pack Upgrade.
6. Configure Windows NT.
7. Install pcANYWHERE32 and CallPilot server software.
8. Install Performance Enhancement Packages (PEPs).

Load ROM-DOS

The first step in performing a hard drive build or recovery is to boot into ROM-DOS and select the Windows NT install options from the ROM-DOS menu.

Erase, and then partition the hard drive

Before you can install Windows NT, the hard drive must be erased of all data, followed by a disk format. If applicable, ensure all data is backed up prior to committing to this procedure.

You require a minimum of 1 Gbyte for the Windows NT files.

Install Windows NT Server 4.0

Windows NT is the operating system on which the 201i server software runs.

The Windows NT installation is virtually a hands-free installation because most of the Windows NT settings have been predetermined. After you start the installation and respond to the preliminary prompts, the majority of the remaining steps install automatically.

The system prompts you to enter the Windows NT 4.0 serial number and server computer name. Remote Access Service (RAS) and Windows NT Service Pack Upgrades are installed automatically.

Configure Windows NT

For correct operation with CallPilot, you must do the following in Windows NT:

1. Create partition drive D: as NTFS.
2. Install network adapters and drivers for the SCSI device and tape drive.
3. Configure the network services and addresses.
4. Optimize network bindings.
5. Configure the correct date and time.
6. Configure virtual memory.
7. Disable debugging information dump file creation.
8. Install the tape drive driver.
9. Remove the old SCSI device driver and install the new one.

Install pcANYWHERE32

pcANYWHERE32 enables your distributor or your Nortel Networks technical support representative to dial in to the server to provide product support.

Install CallPilot server software

Once you have completed installing the operating system, you can install the CallPilot server software.

Install Performance Enhancement Packages

Performance Enhancement Packages (PEPs) are provided on CD-ROM. You must install PEPs in a specific order as identified in the readme files on the PEP CD-ROM.

Booting to ROM-DOS

Introduction

ROM-DOS is a read-only disk operating system that resides on the 201i server. You do not have to install it. It is currently defined as drive A and is only accessible when you select it during the 201i server startup.

When you boot the 201i server to ROM-DOS, you can perform the following tasks:

- View the contents of the hard drive using standard DOS commands.
- Access the CD-ROM.
- Partition and reformat the hard drive.
- Install Windows NT using the SCSI CD-ROM drive.

ATTENTION

ROM-DOS is a read-only version of DOS. Therefore, you cannot write to drive A (for example, copy files) while running ROM-DOS.

To boot to ROM-DOS

- 1 After you insert the 201i server in the switch, restart it using any of the following methods:
 - a. Press the faceplate reset button.
 - b. Simultaneously press the Ctrl+Alt+Delete keys.
 - c. Shut down and restart Windows NT.

Result: Once executed, the 201i server begins to boot. The bootup sequence is very similar to a PC bootup, in that it initializes the memory count and detects the mouse and hard drive.

After the initial bootup screen, the server clears the screen and asks if you want to boot into ROM-DOS:

```
CallPilot 201i Nortel Networks (c) 2000
Option ROM Build from 07/13/00 15:43:44
```

```
Boot ROM-DOS (Default: No after 5 secs.) (Y/N)?
```

ATTENTION

If you do not press Y within five seconds, an error message appears. Press Ctrl+Alt+Delete again. When you see "Boot ROM-DOS (Default: No after 5 seconds.) (Y/N)?" on the screen, press Y.

2 Press Y.

Result: A ROM-DOS startup menu appears as follows. This menu is used for file transfer and to assist you with Windows NT installation:

1. SCSI CD-ROM
2. CLAN NETWORK
3. WINNT INSTALLATION

Note: Option 2: CLAN NETWORK is reserved for Nortel Networks CallPilot Product Support applications.

3 Continue with “Displaying the Windows NT installation menu from ROM-DOS” on page 153.

Displaying the Windows NT installation menu from ROM-DOS

Introduction

The Windows NT installation menu provided in ROM-DOS allows you to erase the hard drive, create a DOS partition, format the hard drive, and perform the Windows NT installation.

To display the menu

- 1 Type **3** and press Enter for WINNT INSTALLATION.

Result: A submenu appears as follows:

1. ERASE HARD DRIVE
2. CREATE DOS PARTITION
3. FORMAT HARD DRIVE
4. WINNT INSTALLATION VIA CD-ROM

- 2 Continue with "Erasing the hard drive" on page 154.

Erasing the hard drive

Introduction

Before you can partition the hard drive, ensure all valid data has been backed up (if applicable).

To erase the hard drive

- 1** From the WINNT installation submenu, type **1** and press Enter for ERASE HARD DRIVE.

Result: The 201i server erases the contents of the hard drive. When completed, the server automatically restarts.
- 2** When the system prompts you for ROM-DOS, press Y.
- 3** Type **3** and press Enter to continue with the Windows NT installation.
- 4** Continue with “Partitioning the hard drive” on page 155.

Partitioning the hard drive

Introduction

The next step in performing a hard drive build or recovery is to partition the hard drive.

To create a new partition

- 1 From the WINNT installation submenu, type **2** and press Enter for CREATE DOS PARTITION.
Result: A 1 Gbyte partition is created.
- 2 When the ROM-DOS prompt appears, press Y.
- 3 Type **3** and press Enter to continue with the Windows NT installation.
- 4 Continue with "Formatting the new partition" on page 156.

Formatting the new partition

Introduction

This section describes how to format the partition you just created using the FAT file system.

To format the new partition

- 1** From the WINNT installation submenu, type **3** and press Enter for FORMAT HARD DRIVE.
Result: You are asked if you want to proceed.
- 2** Type **Y** and press Enter to delete all contents of the hard drive.
Result: When the drive format is completed, the server automatically restarts.
- 3** When you are prompted for ROM-DOS, press Y.
- 4** Type **3** and press Enter to proceed to WINNT installation.
- 5** Continue with “Installing Windows NT from the CD-ROM” on page 157.

Installing Windows NT from the CD-ROM

Introduction

At this stage of the recovery process, you are ready to install the operating system. The Windows NT 4.0 OS Recovery CD-ROM contains special software to allow for a minimal number of user inputs, and automatic installation of the Remote Access Service (RAS) and Windows NT Service Pack Upgrade.

You need the following information before you can install Windows NT:

- Windows NT OEM serial number
- 201i server's network computer name

Post-Windows NT installation requirements are described later in this section.

Before you begin

- 1 Review this section and ensure that you have all the information you need to complete the installation.
- 2 Ensure that the CD-ROM drive is connected to the 201i server before the server is powered on. If the CD-ROM is not connected, do the following:
 - a. Power off the 201i server by removing the server from the switch.
 - b. Attach the CD-ROM drive.
 - c. Power up the CD-ROM drive.
 - d. Reinsert the server into the switch.
 - e. Boot to ROM-DOS by selecting Y when prompted during initial bootup (see page 151).

ATTENTION

If an error occurs during the installation (for example, a SCSI cable is accidentally removed, or power is lost), erase the hard drive, reformat it, and then install Windows NT again.

To install Windows NT from the CD-ROM

ATTENTION

During Windows NT installation, a number of automatic reboots occur. During these reboots, do not start ROM-DOS. The ROM-DOS installation portion is now complete. The last reboot is evident by a 60-second mandatory reboot to allow for Windows NT Service Pack upgrades to take effect.

- 1 From the WINNT installation submenu, press 4 for WINNT INSTALLATION VIA CD-ROM.

Result: When the script is executed, the CD-ROM drivers are loaded and you are prompted to ensure that the Windows NT 4.0 OS Recovery CD-ROM is properly placed in the CD-ROM drive.

- 2 Press any key to continue.

Result: Windows NT begins to install automatically.

Note: A delay of approximately 15 seconds is needed to allow for the CD-ROM spinup and to initialize the newly inserted CD-ROM.

If the CD-ROM drive is not ready, you might receive a CDR101 error message. Ensure the correct CD-ROM is in the drive and that the SCSI cable is connected and powered on. Press R to retry the operation. If the installation fails repeatedly, power off the server, examine all of the connections, and retry the installation.

- 3 When the Windows NT Server Setup dialog box titled Registration appears, enter the Windows NT OEM serial number in the Product ID box, and then press Enter.
- 4 When the Windows NT Server Setup dialog box titled Computer Name appears, enter the server's network computer name in the Name box, and then press Enter.
- 5 When the Windows NT Server Setup dialog box titled Windows NT Setup appears, press Enter.
- 6 Continue with the installation as described in "Configuring Windows NT Server 4.0" on page 159.

Configuring Windows NT Server 4.0

Introduction

After the Windows NT installation is complete, you must perform the following tasks to ensure correct operation of Windows NT with CallPilot:

1. Create partition drive D as NTFS (see page 160).
2. Install network adapter, SCSI device, and tape drive drivers (see page 165).
3. Configure the network services and addresses (see page 166).
4. Configure the correct date and time (see page 180).
5. Configure virtual memory (see page 181).
6. Install the tape drive driver (see page 184).
7. Remove the old SCSI device driver and install the new one (see page 186).

Logging on

When Windows NT has completed the installation, you are presented with the Begin Logon dialog box that prompts you to press Ctrl+Alt+Delete to log on. You must log on as Administrator and complete the post-installation tasks described in this section.

Notes:

- For the initial installation of Windows NT, the Administrator password is not defined.
- After you log on, Windows NT displays a Welcome dialog box. For more convenience, click the “Show this Welcome screen next time you start Windows NT” check box to remove the check mark, and then click Close.

Creating the drive D NTFS partition

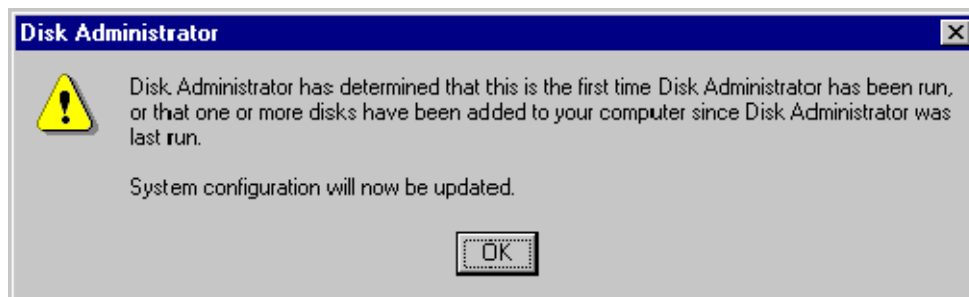
Introduction

This section explains how to create the drive D NTFS partition.

To create the drive D NTFS partition

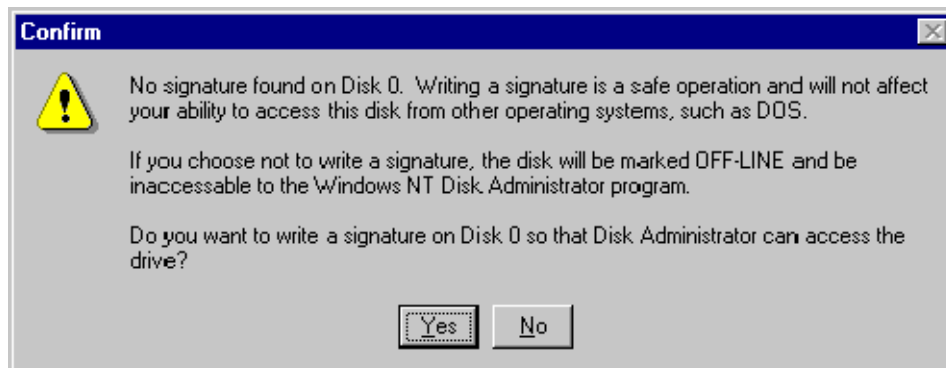
- 1 Click Start > Programs > Administrative Tools (Common) > Disk Administrator.

Result: Disk Administrator prompts you to update the System Configuration utility.



- 2 Click OK.

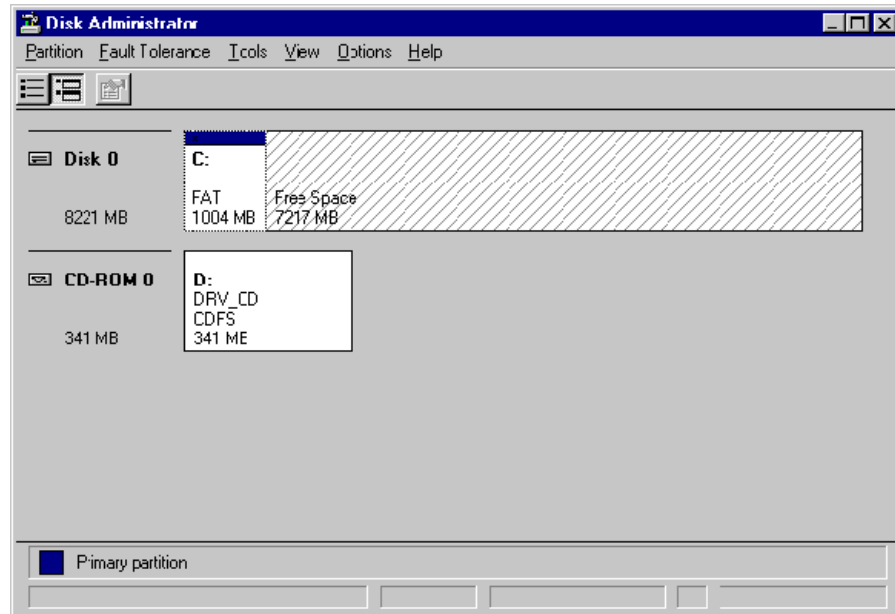
Result: Windows NT identifies the drive as being new and asks for permission to create a signature on the hard drive.



Note: If Windows NT was previously installed, the hard drive signature already exists. Therefore, this window does not appear.

- 3 Click Yes.

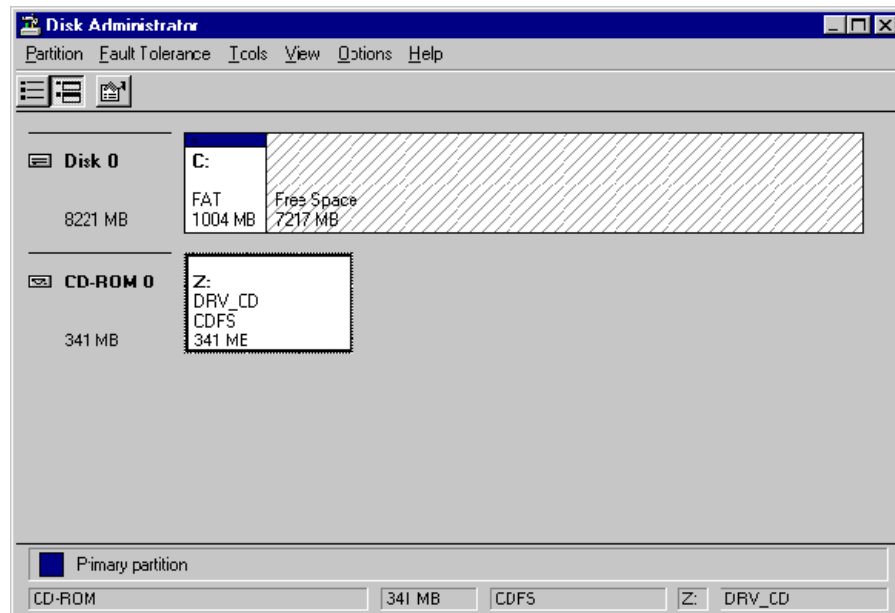
Result: The Disk Administrator window similar to the following appears:



Before you can create a new partition, you must change the CD-ROM drive letter to drive Z. This releases drive letter D, which will be used to create the 4 Gbyte NTFS partition.

- 4 Highlight the white square labeled “D” and right-click.
- 5 Select Assign Drive Letter, and then reassign to drive Z.
- 6 Click OK, and then click Yes to implement the changes immediately.

The following window is a completed example:



- 7 Right-click the diagonally lined box labeled “Free Space” beside Disk 0.

Result: A pop-up menu appears.

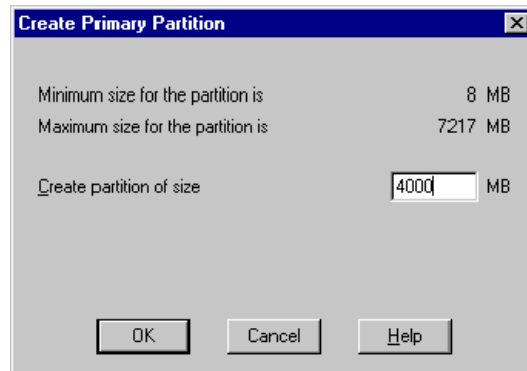
- 8 Select Create.

Result: A confirmation message appears.

- 9 Click Yes.

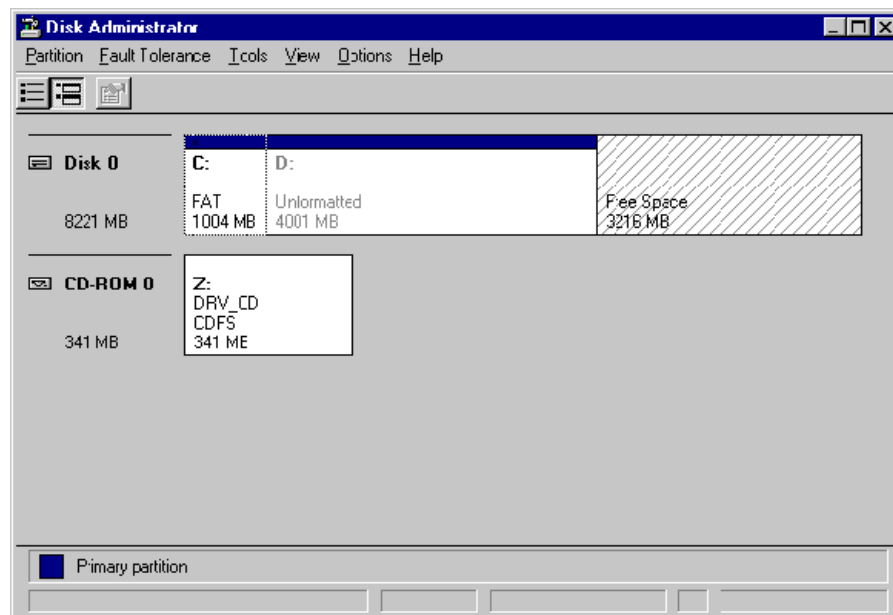
- 10 Create a partition of 4000 Mbytes (4.0 Gbytes).

The following dialog box is an example:



- 11 Click OK.

Result: You are returned to the Disk Administrator window.



The next step is to format the new partition to NTFS.

- 12 Right-click the white box for drive D.

Result: A pop-up menu appears.

- 13 Select Commit Changes Now.

Result: A confirmation window appears.

- 14 Click Yes.

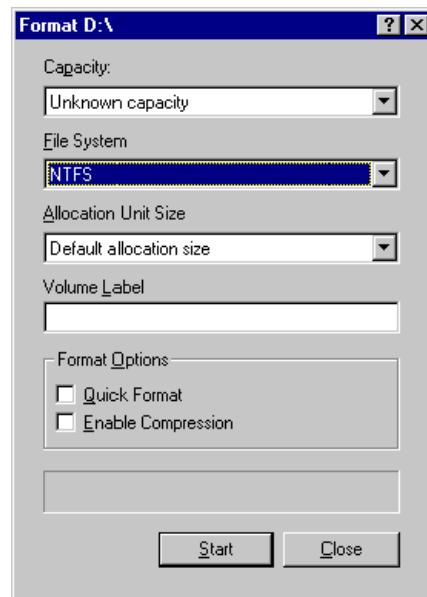
Result: The Disk Administrator responds by stating that your changes were successful.

- 15 Click OK.

- 16 Right-click the white box for drive D again.

- 17 From the pop-up menu, select Format.

Result: The Format dialog box appears:



- 18 Ensure that NTFS is selected in the File System list.

- 19 Click Start.

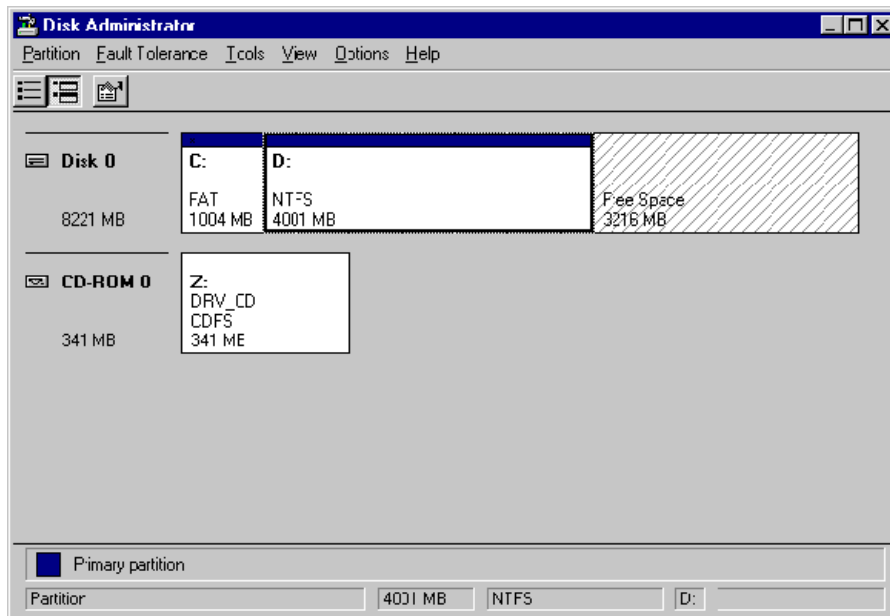
Result: A warning message appears.

- 20 Click OK.

Result: Drive formatting begins and takes approximately 5 minutes to complete.

- 21 When drive formatting is completed, click OK and then click Close to exit the Format D: dialog box.

Result: The Disk Administrator window resembles the following:



- 22 Click Partition > Exit to leave Disk Administrator.
- 23 Continue with "Installing device drivers" on page 165.

Installing device drivers

Introduction

The Application Server Driver CD-ROM contains all hardware-related drivers for the 201i server (such as Ethernet, SCSI device, tape drive, and so on). This section explains how to install the drivers.

To load the 201i device drivers from the Application Server Driver CD-ROM

- 1 Remove the Windows NT 4.0 OS Recovery CD-ROM from the CD-ROM drive and insert the Application Server Driver CD-ROM.

The CD-ROM contains all hardware-related drivers for the 201i server (such as Ethernet, SCSI device, tape drive, and so on).
Result: The application launches automatically.
- 2 The system prompts you to ensure that you are using a 20xi server.
- 3 Press Y.
- 4 Navigate to CallPilot Tools.
- 5 Press Enter.
Result: A submenu appears displaying the different platforms.
- 6 Select 201i.
- 7 Press Enter.
- 8 Press Enter to copy the drivers to the hard drive.
Result: The program prompts you if you want to continue.
- 9 Click Y for yes.
Result: The target directory is shown as c:\201TMP\<drivers>.
- 10 Click any key to continue.
Result: Once the installation is complete, the `Drivers copied` message appears.
- 11 Press any key to continue.
Result: The 201i menu appears.
- 12 Click ESC three times to exit the program.
- 13 Remove the Application Server Driver CD-ROM from the CD-ROM drive.
- 14 Continue with "Configuring the network interface" on page 166.

Configuring the network interface

Introduction

This section describes how to configure the following elements:

- network services

You must remove the MS Internet Server because it is not used by CallPilot.

The unattended Windows NT installation installs Remote Access Service with a generic IP configuration. You must configure the settings to your organization's specifications.

- network adapters

The MS Loopback Adapter is a dummy adapter used during the unattended installation of Windows NT. Its presence is not required by CallPilot and can be deleted at this time.

Your 201i server has two embedded Ethernet adapters. This section explains how to install and configure both network adapters.

- network addresses

To establish connectivity between CallPilot, the switch, and your network, you must enter the CallPilot server's IP address, subnet mask, and default gateway.

You must also enter the WINS servers' IP addresses, domain name, DNS service search order, and domain suffix search order information for your network infrastructure.

To remove MS Internet Server

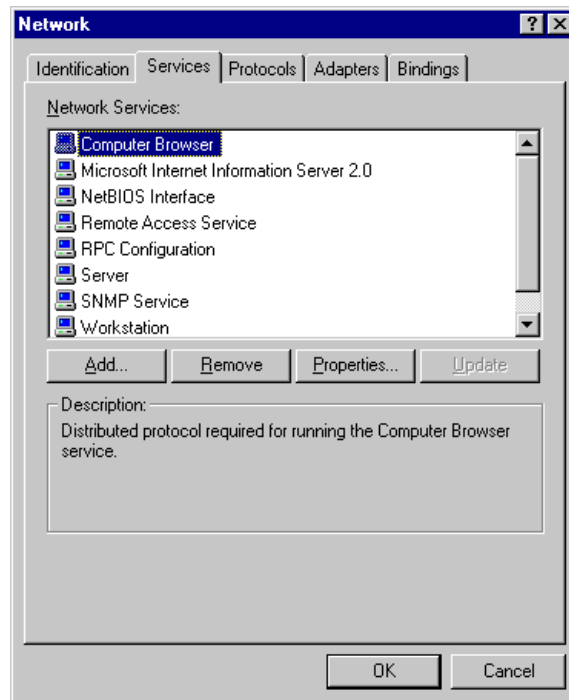
You must remove the MS Internet Server because it is not used by CallPilot.

- 1 Click Start > Settings > Control Panel.
- 2 Double-click the Network icon.

Result: The Network dialog box appears.

- 3 Click the Services tab.

Result: The Services tab appears.

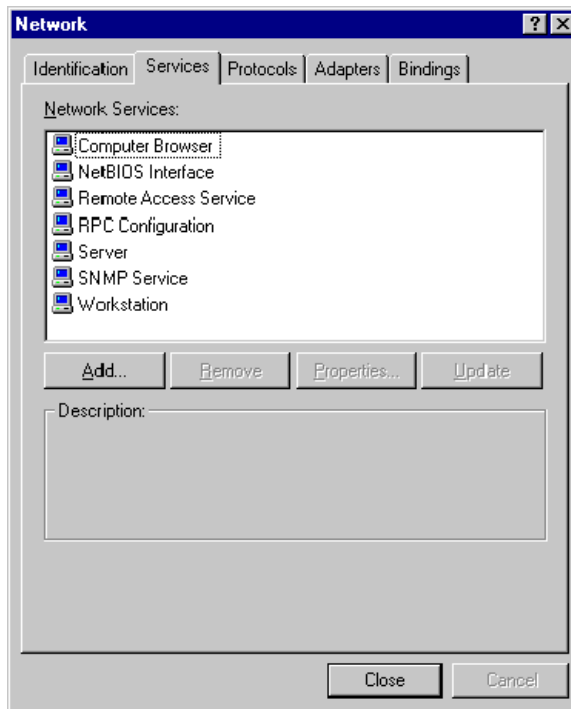


- 4 Select Microsoft Internet Information Server 2.0, and then click Remove.

Result: Windows NT prompts you to confirm the change.

- 5 Click Yes.

Result: Once the change is completed, the Services tab should resemble the following:



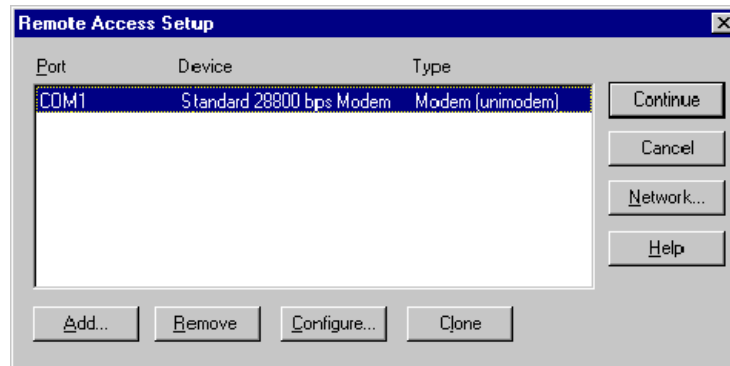
- 6 Continue with “To configure the Remote Access Service” on page 169.

To configure the Remote Access Service

The unattended Windows NT installation installs Remote Access Service with a generic IP configuration. You must configure the settings to your organization's specifications.

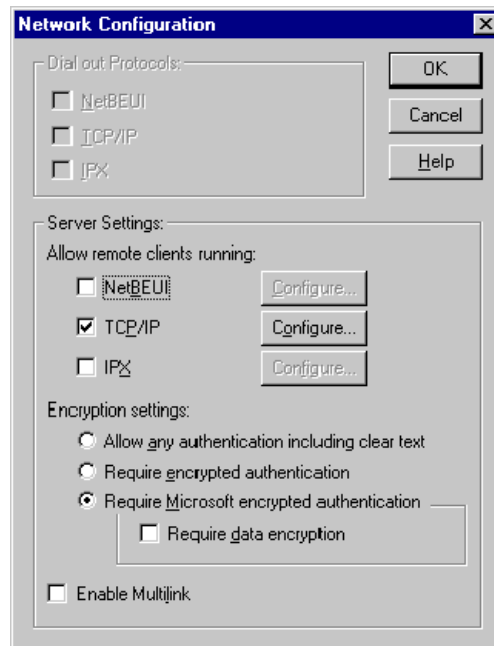
- 1 On the Services tab, select Remote Access Service, and then click Properties.

Result: The Remote Access Setup dialog box appears.



- 2 Click Network.

Result: The Network Configuration dialog box appears.

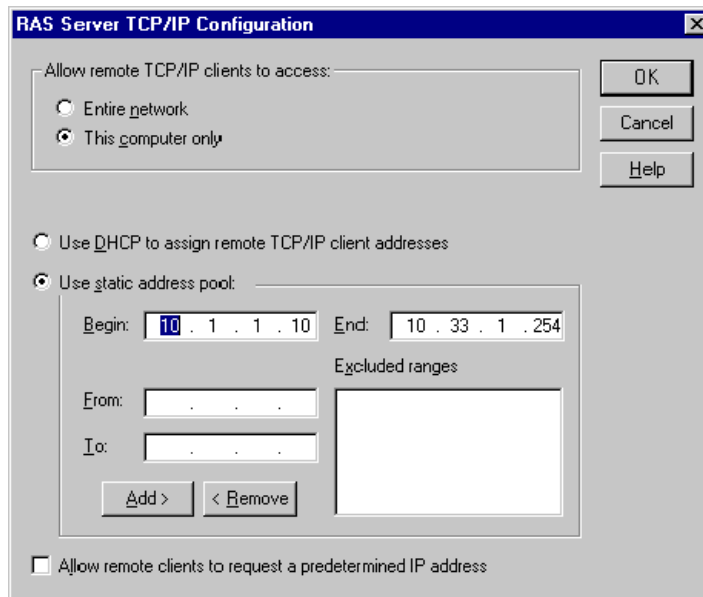


- 3 Ensure that TCP/IP is checked, and then click Configure.

Result: The RAS Server TCP/IP Configuration dialog box appears.

- 4 Change the default IP settings according to your site requirements.

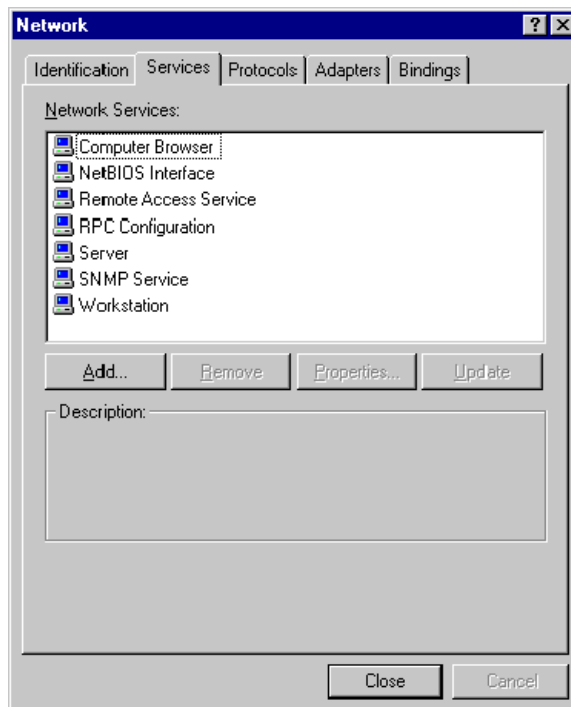
The following dialog box provides an example:



- 5 Click OK twice.

- 6 Click Continue.

Result: The Network dialog box reappears.



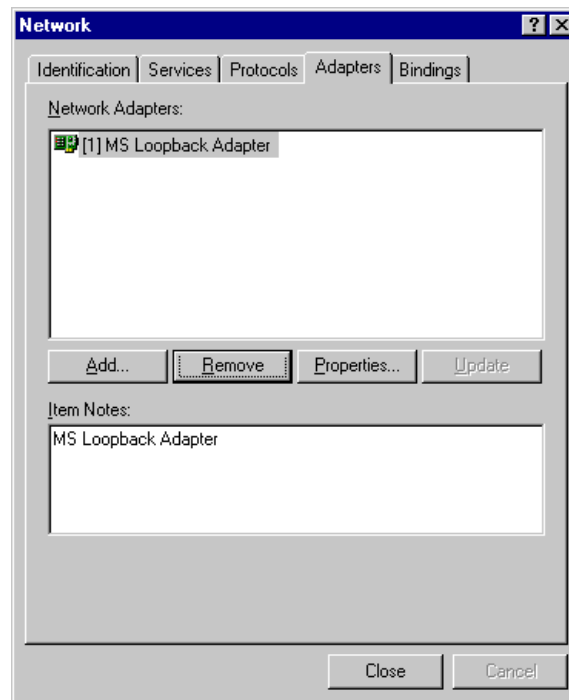
- 7 Continue with "To remove the MS Loopback Adapter" on page 171.

To remove the MS Loopback Adapter

The MS Loopback Adapter is a dummy adapter used during the unattended installation of Windows NT. CallPilot does not require its presence; therefore, it can be deleted at this time.

- 1 Click the Adapters tab.

Result: The Adapters tab appears.

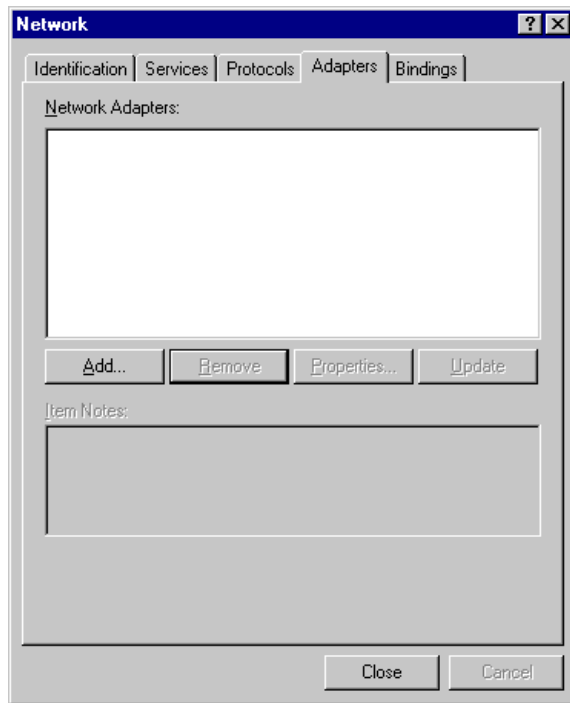


- 2 Select [1] MS Loopback Adapter, and then click Remove.

Result: A warning pop-up window appears.

- 3 Click Yes.

Result: After the adapter is removed, the network dialog box resembles the following example:



- 4 Continue with “To install the 10/100 Base-T network interface adapters” on page 172.

To install the 10/100 Base-T network interface adapters

- 1 On the Adapters tab, click Add.

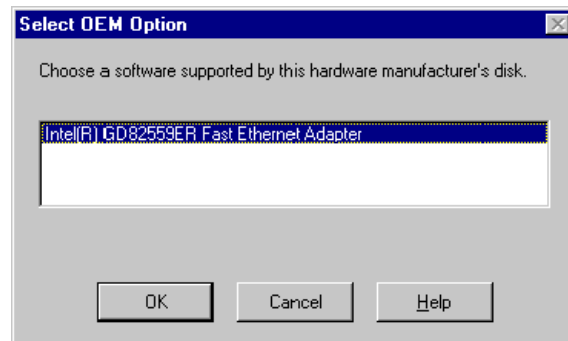
Result: The system prompts you for the source files for the network adapter cards.

- 2 Click Have Disk, and then type the following as the path:

c:\201tmp\network\intel

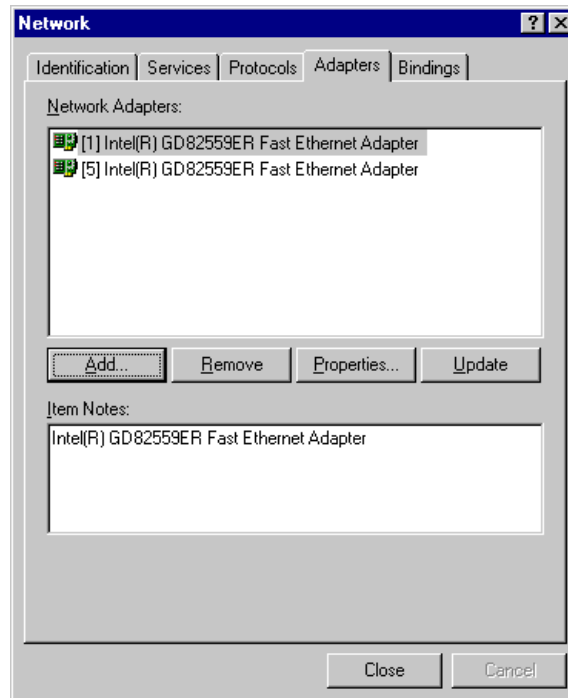
- 3 Press Enter.

Result: The following dialog box appears:



- 4 Click OK.

Result: When the adapter is installed, it appears twice in the list, similar to the following example:



The CLAN is always defined as the first Intel network adapter and is represented as [1]. The ELAN is the second Intel network adapter and is represented as [5].

- 5 Click Close.
- 6 Continue with “To configure the network addresses” below.

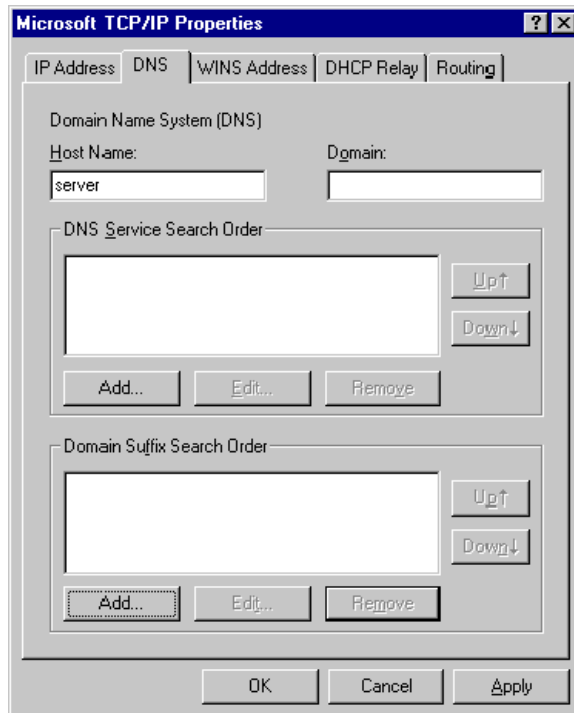
To configure the network addresses

To establish connectivity between CallPilot, the switch, and your network, you must enter the CallPilot server’s IP address, subnet mask, and default gateway, as well as the WINS servers’ IP addresses, domain name, DNS service search order, and domain suffix search order information for your network infrastructure.

Note: The CLAN is the first Intel network adapter and is represented as [1]. The ELAN is the second Intel network adapter and is represented as [5].

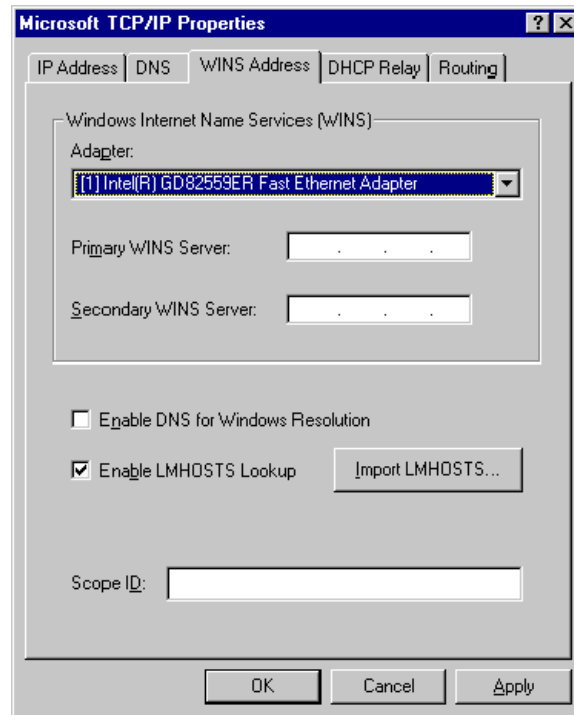
- 1 On the Microsoft TCP/IP Properties dialog box, do the following for each of the CLAN and ELAN network adapters:
 - a. Select the network adapter you want to configure from the Adapter list box.
 - b. Enter the following information according to your network infrastructure:
 - IP Address (for example, 1.1.1.1)
 - Subnet Mask (for example, 255.255.255.0)
 - Default Gateway
- 2 Click the DNS tab.

Result: The DNS property page appears.



- 3 Enter the domain name, DNS service search order, and domain suffix search order information for your network infrastructure.
- 4 Click the WINS Address tab.

Result: The WINS Address property page appears.



- 5 Enter the IP addresses for the primary and secondary WINS servers. Ensure (if applicable) that the WINS server IP addresses are entered for both Ethernet adapters.
- 6 Click OK at the bottom of the Network dialog box.

Result: Windows NT prompts you to restart the server to allow the changes to take effect.

- 7 Click Yes.
- 8 Once the system has restarted, press Ctrl+Alt+Delete and log on again.
- 9 Continue with "Configuring the date and time" on page 180.

Optimizing the network bindings

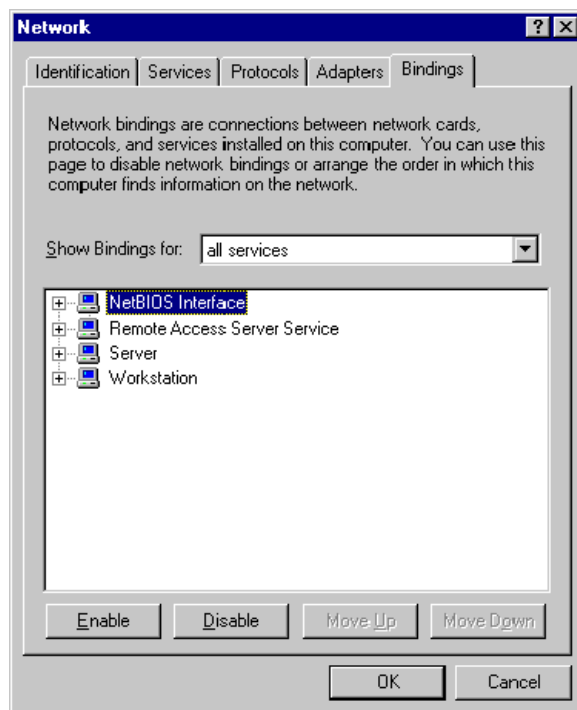
Introduction

This section explains how to optimize the network bindings. Network bindings tell the 201i server the order in which to find information on the network.

Note: If, at a later time, you add or replace the CLAN adapter, you must readjust the binding order.

To configure the network bindings

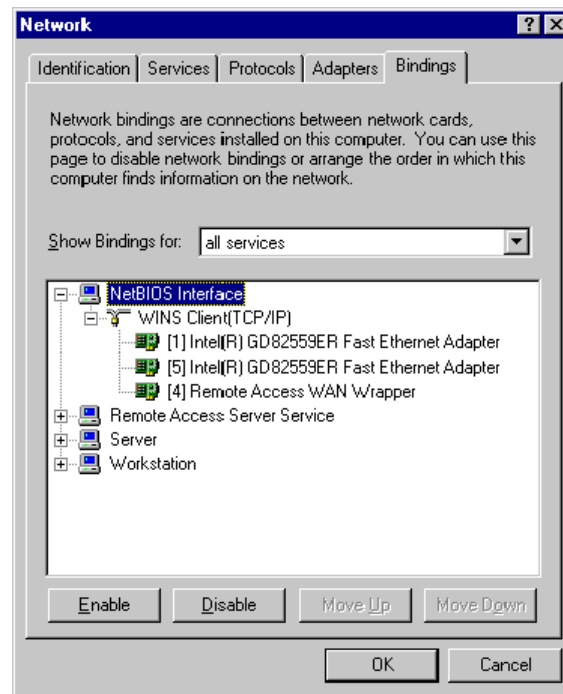
- 1 Click Start > Settings > Control Panel.
- 2 Double-click the Network icon.
Result: The Network dialog box appears.
- 3 Click the Bindings tab.
Result: The Bindings property page appears.



- 4 Configure the NetBIOS Interface service group as follows:
 - a. Expand the NetBIOS service group by clicking the plus sign (+) beside NetBIOS Interface.
 - b. Expand the WINS client (TCP/IP) group by clicking the plus sign (+).

- c. Click each adapter, and then click Move Up or Move Down to sort the list into the following order:

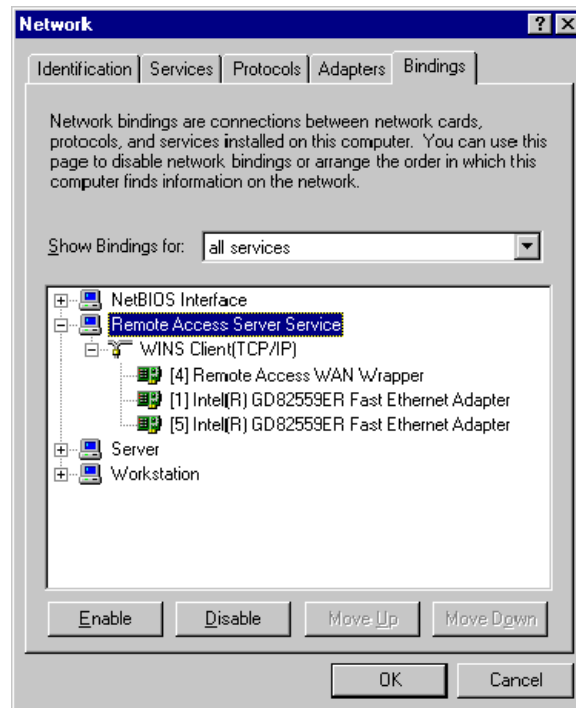
- CLAN adapter
- ELAN adapter
- RAS adapter.



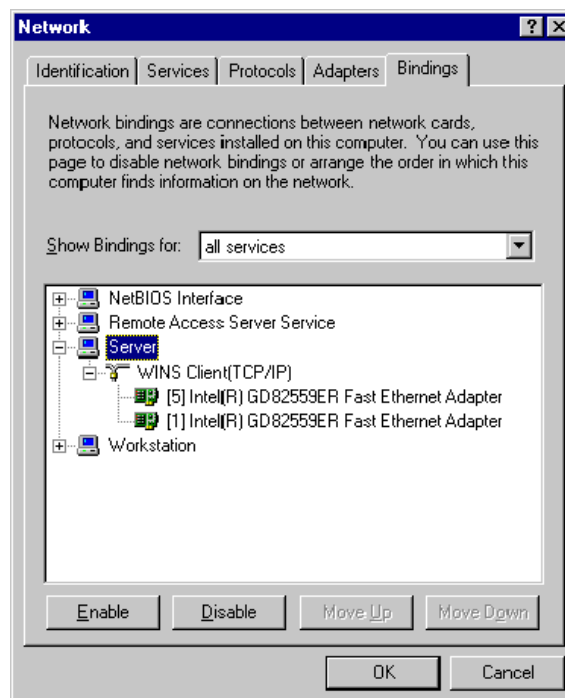
- d. Collapse the NetBIOS Interface service group by clicking the plus sign (+).

- 5 Repeat the procedure described in step 4 to configure the Remote Access Server Service group into the following order:

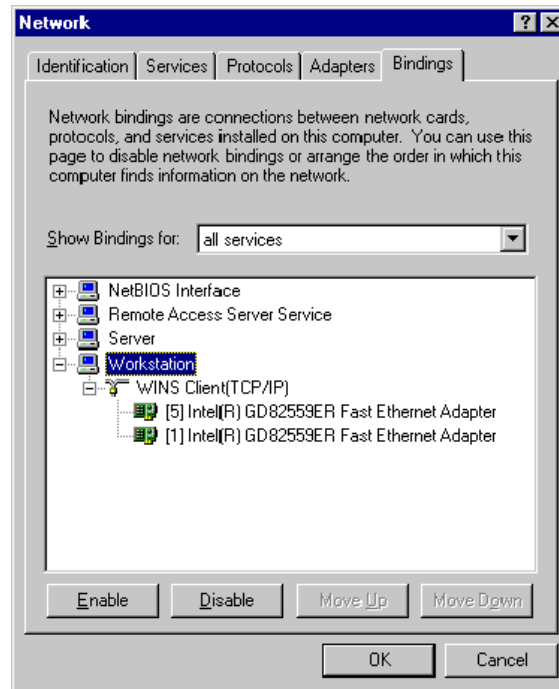
- RAS adapter
- Adapter configured for the RAS pool
- ELAN adapter



- 6 Repeat the procedure again to configure the Server service group into the following order:
- ELAN adapter
 - CLAN adapter



- 7 Repeat the procedure again to configure the Workstation service group into the following order:
 - ELAN adapter
 - CLAN adapter



- 8 Click OK.
Result: Windows NT prompts you to restart the server to allow the changes to take effect.
- 9 Click No.
- 10 Continue with “Configuring the date and time” on page 180.

Configuring the date and time

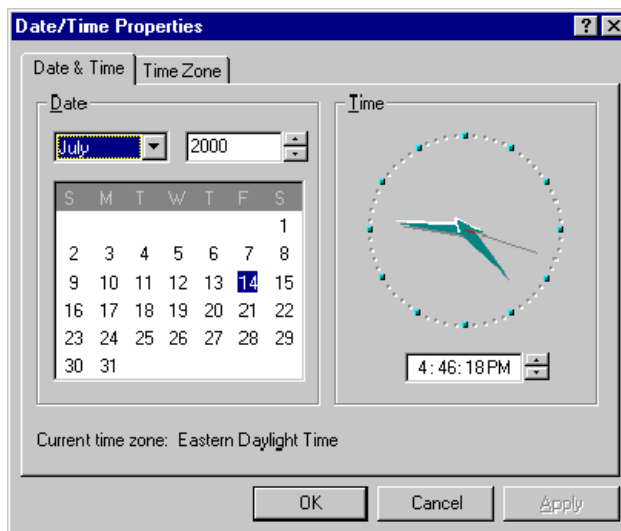
Introduction

This section explains how to configure the system date and time.

To configure the date and time

- 1 Click Start > Settings > Control Panel.
- 2 Double-click the Date/Time icon.

Result: The Date & Time Properties dialog box appears.



- 3 Enter the correct date and time.
- 4 Click the Time Zone tab.
Result: The Time Zone property page appears.
- 5 Select the time zone for your geographical area.
Example: (GMT -05:00) Eastern Time (US & Canada)
Note: During installation, Eastern Time is defined as the default. Select the time zone for your region.
- 6 Ensure the check box for "Automatically adjust clock for daylight saving changes" is checked.
- 7 Click OK.
- 8 Continue with "Configuring virtual memory and system recovery settings" on page 181.

Configuring virtual memory and system recovery settings

Introduction

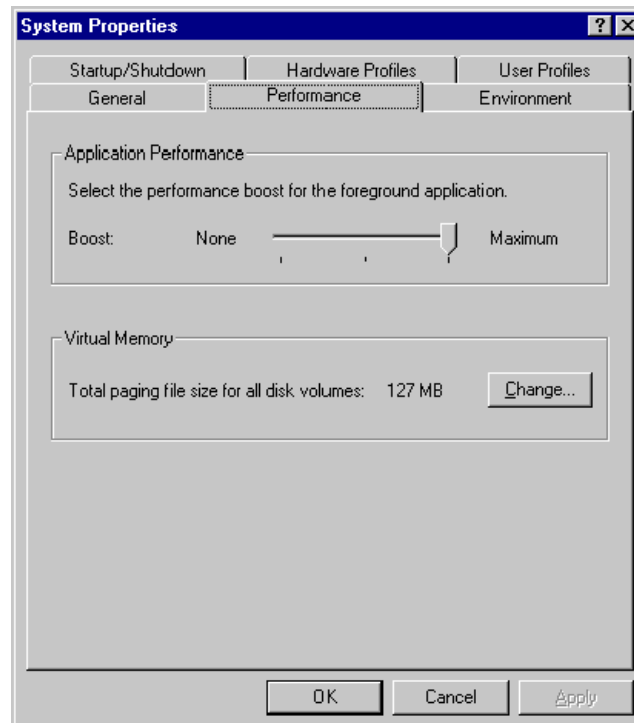
This section explains how to

- configure virtual memory
- disable debugging information dump file creation to conserve disk space

To configure virtual memory

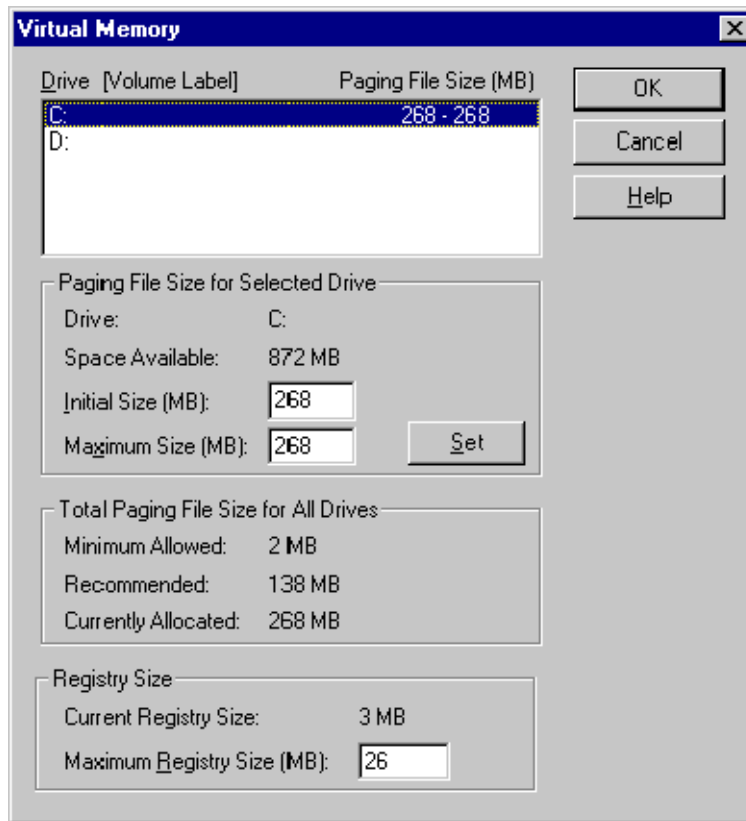
- 1 Click Start > Settings > Control Panel.
- 2 Double-click the System icon.
- 3 Click the Performance tab.

Result: The Performance property page appears.



- 4 In the Virtual Memory section, click Change.

Result: The Virtual Memory dialog box appears.

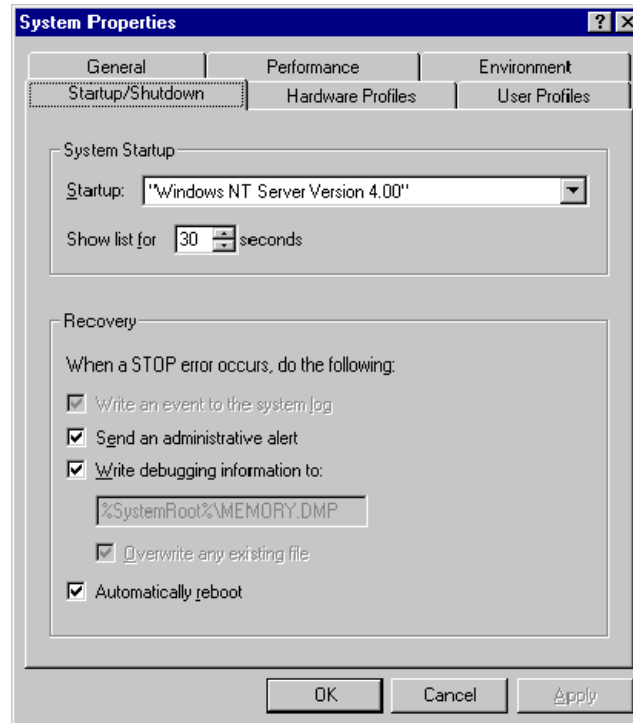


- 5 Type **268** in the Initial Size (MB) and Maximum Size (MB) boxes.
- 6 Click Set to commit the changes.
- 7 Click OK.
- 8 Continue with “To disable debugging information dump file creation” on page 183.

To disable debugging information dump file creation

- 1 Click the Startup/Shutdown tab.

Result: The Startup/Shutdown property page appears.



- 2 Click the "Write debugging information to" check box to remove the check mark.
- 3 Click Apply, and then click OK.

Result: The System Setting Change dialog box appears informing you that a restart is necessary for changes to take effect.

- 4 Click OK to restart the server.
- 5 Once the system has restarted, press Ctrl+Alt+Delete and log on again.
- 6 Continue with "Installing the tape drive and SCSI device drivers" on page 184.

Installing the tape drive and SCSI device drivers

Introduction

After Windows NT has restarted, you must install the tape drive driver. The tape drive is used to perform backups of the CallPilot system databases.

You must remove the existing SCSI driver and replace it with the updated driver.

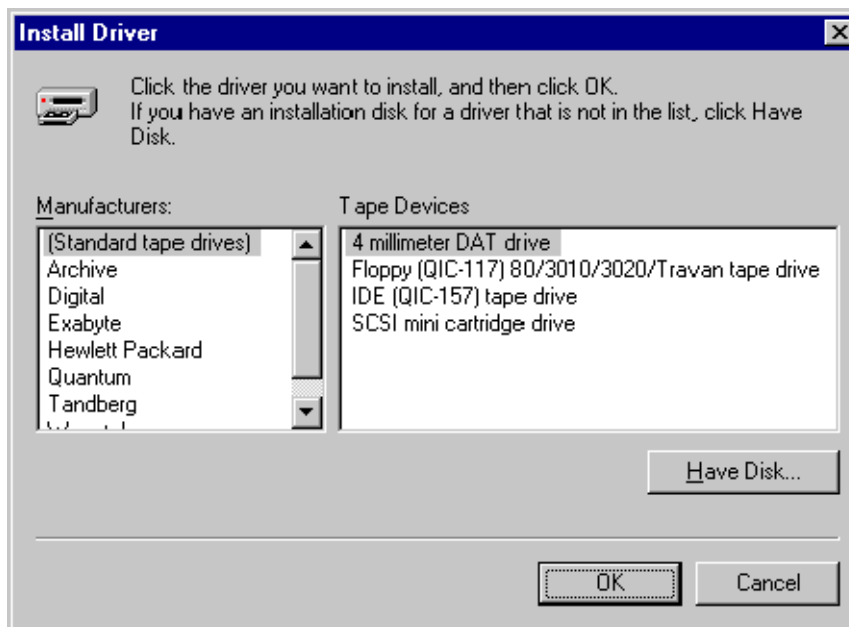
To install the tape drive driver

- 1 Click Start > Settings > Control Panel.

Result: The Control Panel appears.

- 2 Double-click the Tape Devices icon.
- 3 Click the Drivers tab.
- 4 Click Add.

Result: The list of available tape drive device drivers similar to the following example appears:

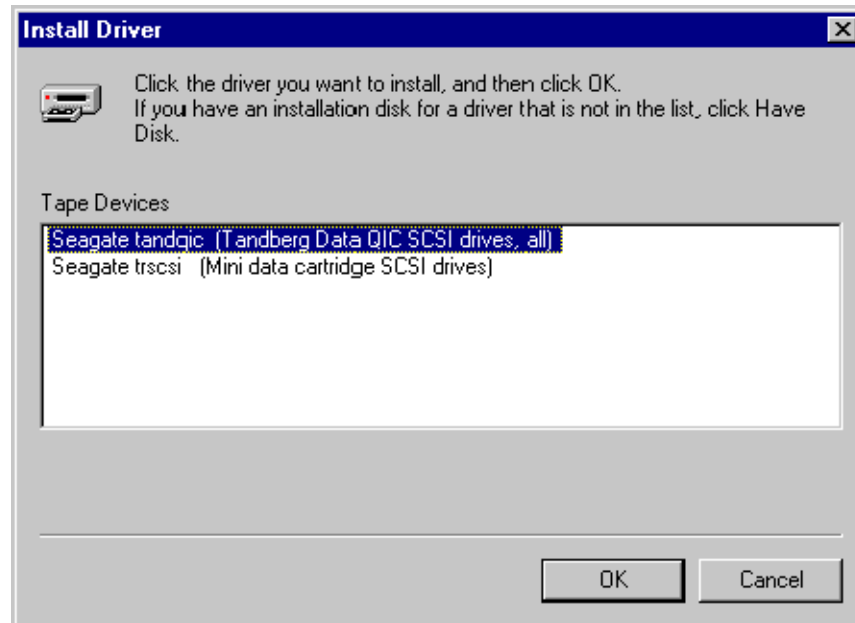


- 5 Click Have Disk.

Result: The system prompts you to insert the manufacturer's installation disk.

- 6 Type **c:\201tmp\tape** as the path.
- 7 Click OK.

Result: The system prompts you to select a device driver from the displayed list similar to the following example:



- 8 Select Seagate tandqic (Tandberg Data QIC SCSI drives, all).
- 9 Click OK.

Result: The system prompts you for the path to the OEM Tape Device files.

- 10 Type **c:\201tmp\tape** as the path, and then click Continue.

Result: The driver files are copied to the system.

- 11 Click OK twice to exit the window.

Note: If there is no tape drive attached to the CallPilot system after you install the tape drive driver and you have restarted the system, a Service Control Manager warning message might appear that says At least one service or driver failed during system startup. Use Event Viewer to examine the event log for details. You can ignore this message. Click OK and continue to the next step.

- 12 Continue with “To install the updated SCSI device driver” on page 186.

To install the updated SCSI device driver

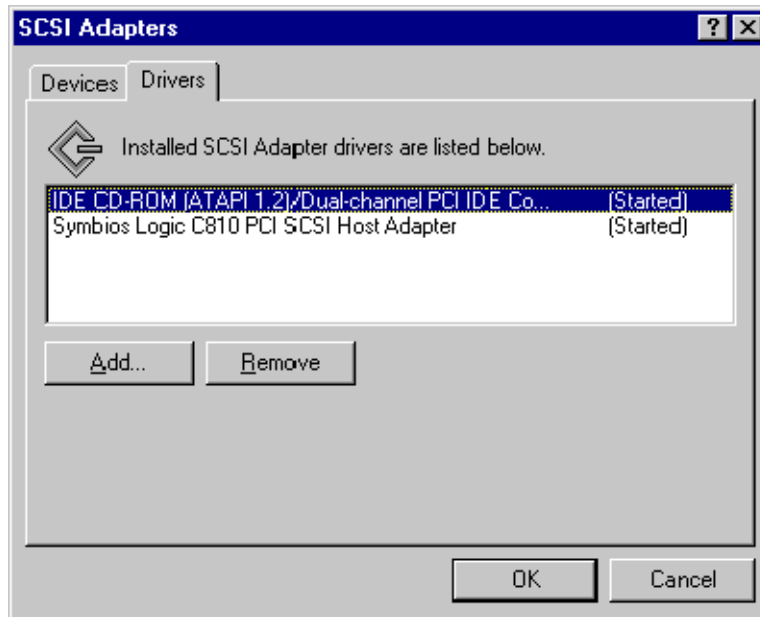
- 1 Click Start > Settings > Control Panel.

Result: The Control Panel appears.

- 2 Double-click the SCSI Adapters icon.

- 3 Click the Drivers tab.

Result: The SCSI Adapters dialog box similar to the following example appears:

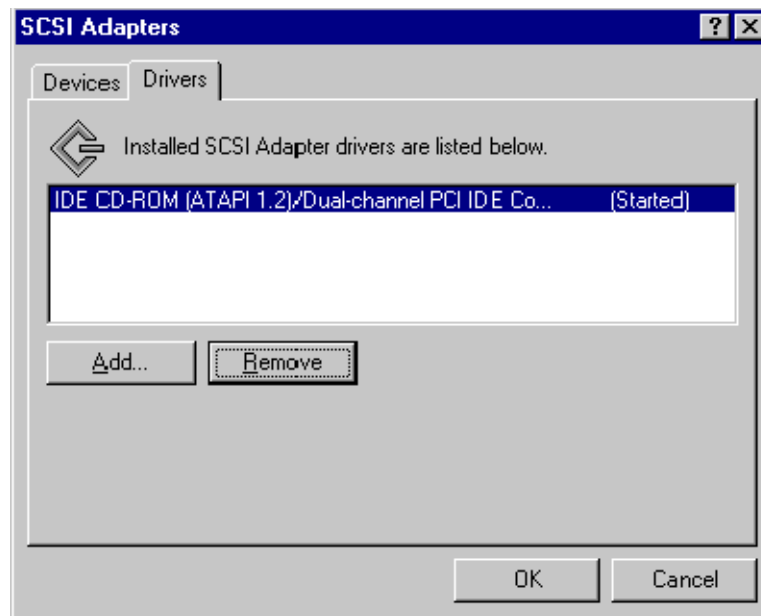


- 4 Select the Symbios Logic C810 driver, and then click Remove.

Result: The system prompts you to confirm the change.

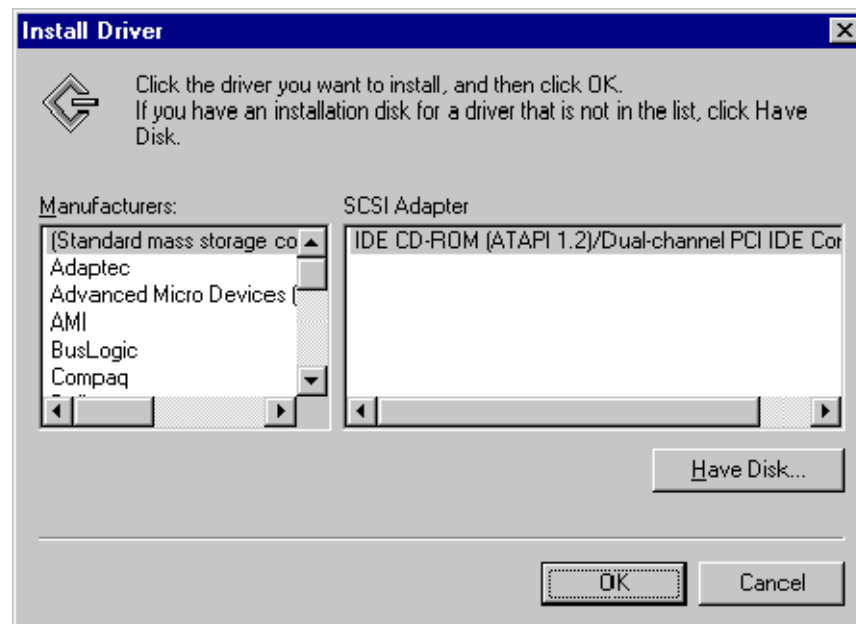
- 5 Click Yes.

Result: The SCSI Adapters dialog box now resembles the following example:



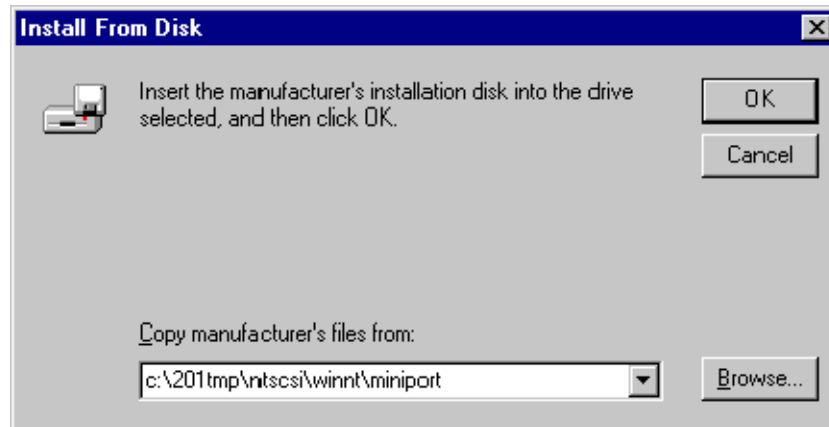
- 6 Click Add.

Result: Windows NT displays a list of SCSI adapter drivers similar to the following example:



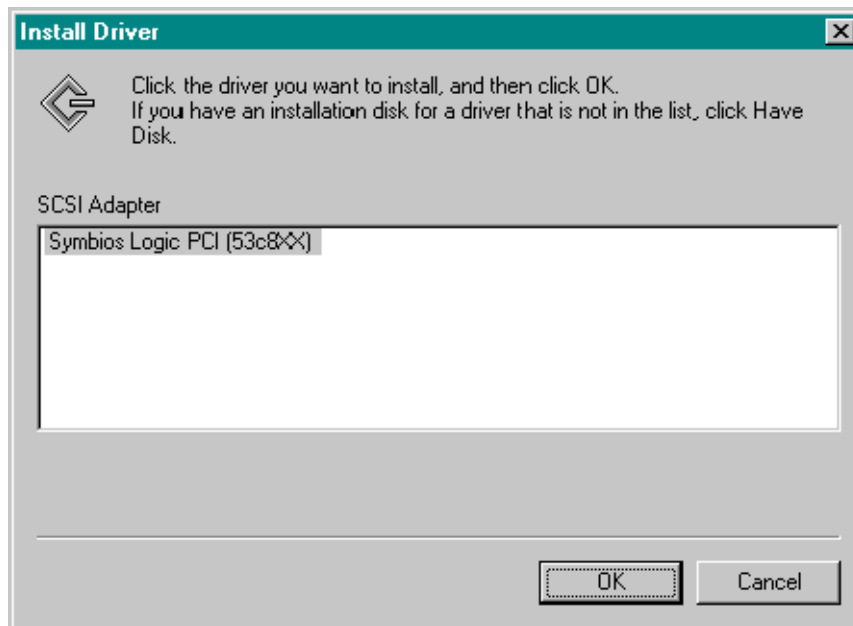
- 7 Click Have Disk.
- 8 Type `c:\201tmp\ntscsi\winnt\miniport` as the path.

Result: The system prompts you to insert the manufacturer's installation disk.



- 9 Click OK.

Result: The system prompts you to select a device driver from the displayed list similar to the following example:



- 10 Click OK.

Result: The system prompts you for the path to the OEM SCSI Device files.

11 Type **c:\201tmp\ntscsi\winnt\miniport** as the path.

12 Click Continue.

Result: The driver files are copied to the system. The system prompts you to restart Windows NT to allow the changes to take effect.

13 Select Yes.

Result: The server restarts.

What's next?

Install pcANYWHERE32.

Installing pcANYWHERE32

Introduction

The process of installing pcANYWHERE32 involves the following procedures:

1. Install the pcANYWHERE32 application on the server (see below).
2. Start pcANYWHERE32 for the first time.

This procedure allows you to set the network device (see page 196).

3. Set the video mode (see page 198).

This procedure synchronizes the video card settings with that of the administration client PC to ensure the remote user can see the server graphical user interfaces properly.

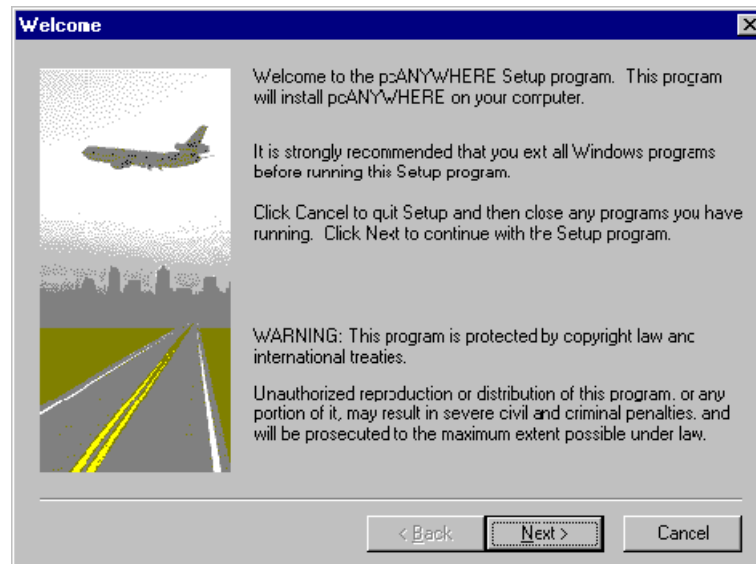
4. Install pcANWHERE32 patches (see page 200).
5. Configure pcANWHERE32 (see page 201).
6. Set the pcANYWHERE32 service to Automatic (see page 204).

This procedure enables the pcANYWHERE32 service to start automatically after reboot.

To install pcANYWHERE on the server

- 1 Log on as administrator.
- 2 Insert the MAS 2.0 Operating System CD-ROM into the CD-ROM drive.
- 3 Ensure all other Windows applications are closed.
- 4 Navigate to the Installs\Pca32\Disk1 folder on the CD-ROM drive as follows:
 - a. Double-click Installs.
 - b. Double-click Pca32.
 - c. Double-click Disk1.
 - d. Locate and double-click the Setup application file.

Result: The Welcome to pcANYWHERE setup program window appears.



- 5 Click Next to start the installation.

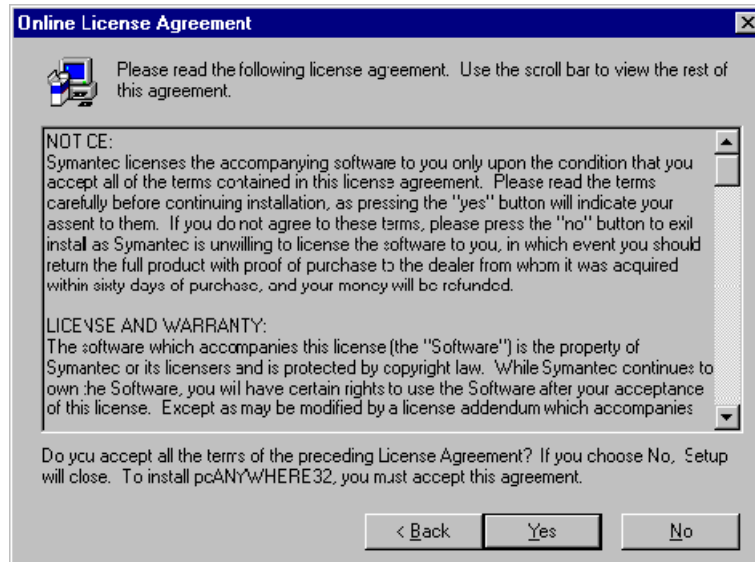
Result: The User Information window appears.



- 6 Enter the user name and company name, and then click Next.

Note: Ensure that the company name is the same as the one entered during the Windows NT installation.

Result: The Online License Agreement window appears.



- 7 Click Yes to accept the software license agreement.

Result: The Choose Destination Location window appears.

- 8 Click Browse, and then change the directory to d:\pcANYWHERE.

Note: You might be warned that the directory does not exist and asked if you want to create it. Click Yes.

Result: The Choose Destination Location window reappears with the revised directory path.



9 Click Next.

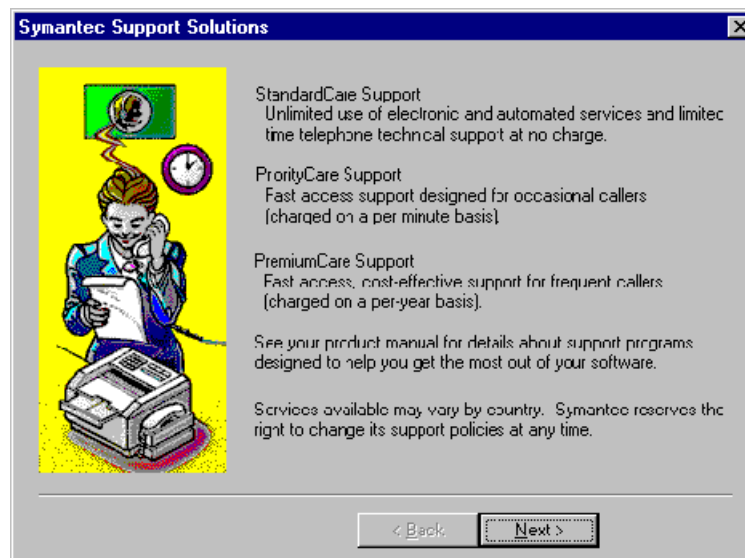
Result: The Setup Review window appears.



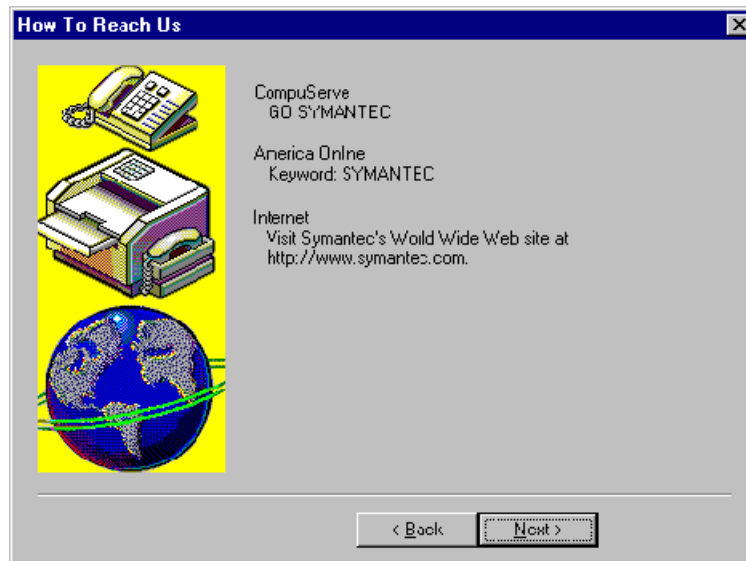
10 Click Next to continue.

Result: Program and other files are copied to the system.

When installation is complete, the Symantec Support Solutions window appears.

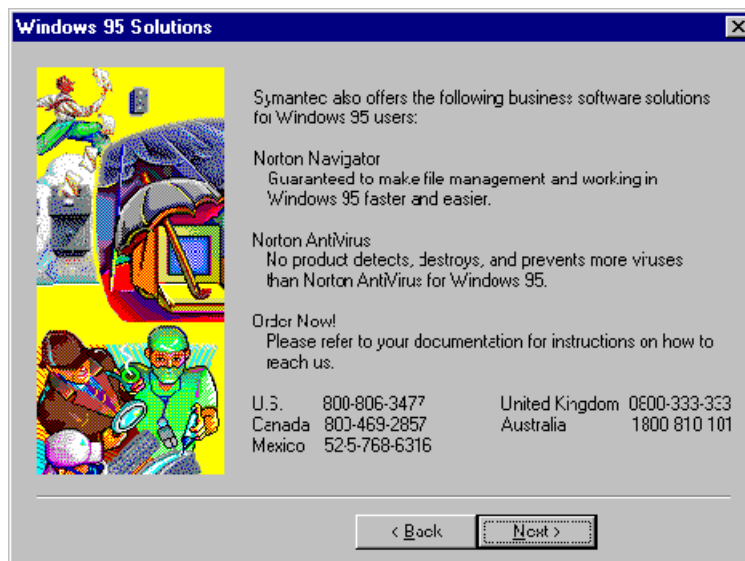


- 11 Click Next to display the How To Reach Us window.



- 12 Click Next to continue.

Result: The Windows 95 Solutions window appears.



- 13 Click Next to continue.

Result: The Registration Wizard window appears.



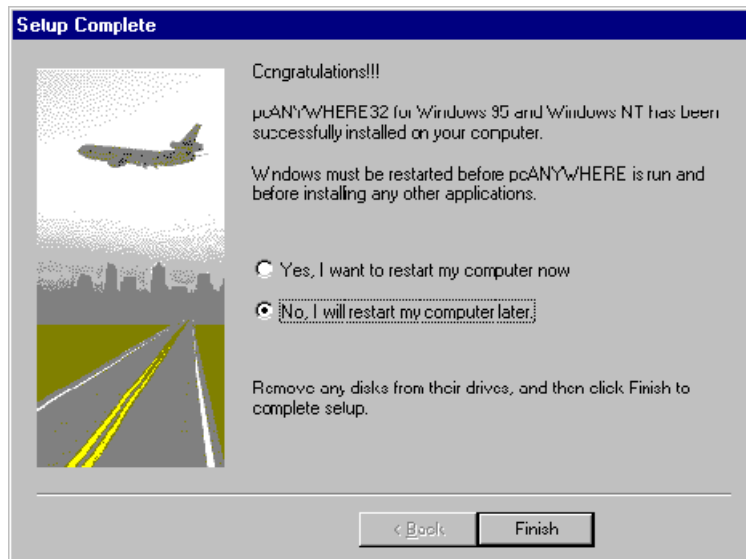
- 14 Click Skip.

Result: The system asks if you want to view the README file now.



- 15 Click No.

Result: Setup prompts you to restart the computer.



- 16 Click No, I will restart my computer later, and then click Finish.

Result: pcANYWHERE32 setup terminates.

To start pcANYWHERE32 for the first time

- 1 Click Start > Programs > pcANYWHERE32 > pcANYWHERE.

Result: The Smart Setup Wizard window appears, and the system prompts you for the modem device.



- 2 Ensure that the Standard 28800 bps Modem is selected, and then click Next.

Result: The system prompts you to select the network device.



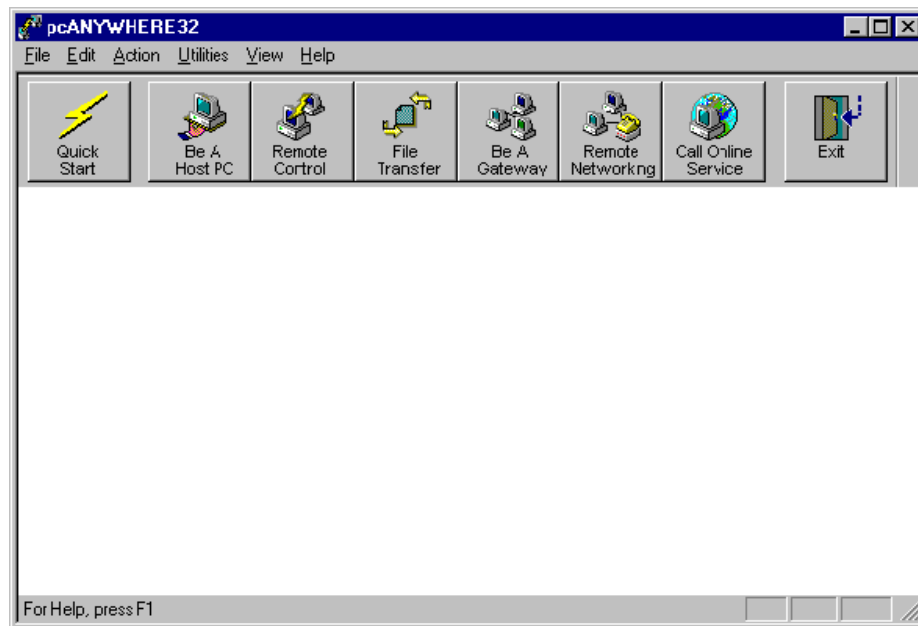
- 3 Ensure that only TCP/IP is selected, and then click Next.

Result: The system prompts you to select a port.



- 4 Ensure that you select COM1, and then click Finish.

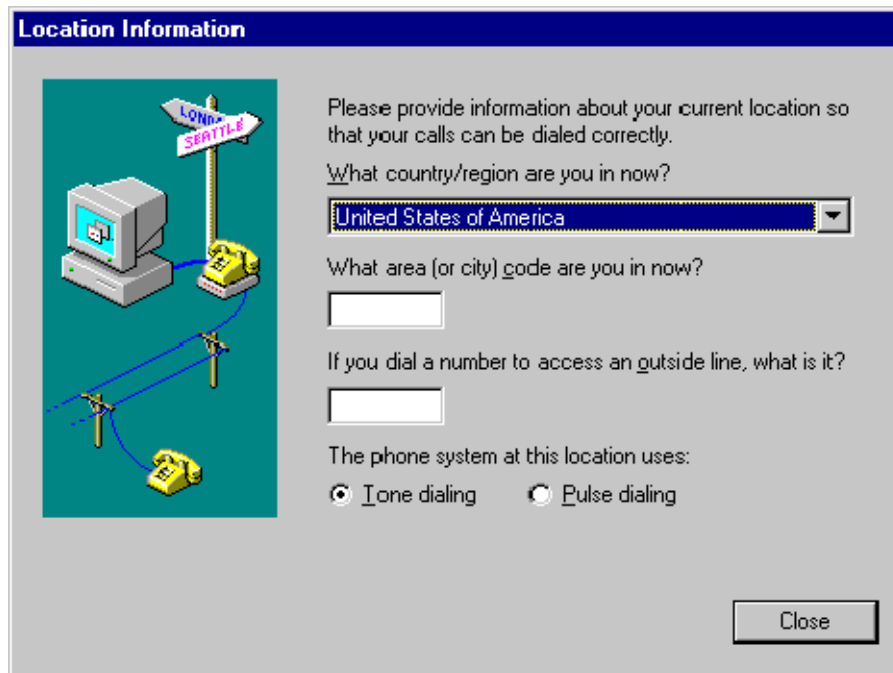
Result: The pcANYWHERE32 window appears.



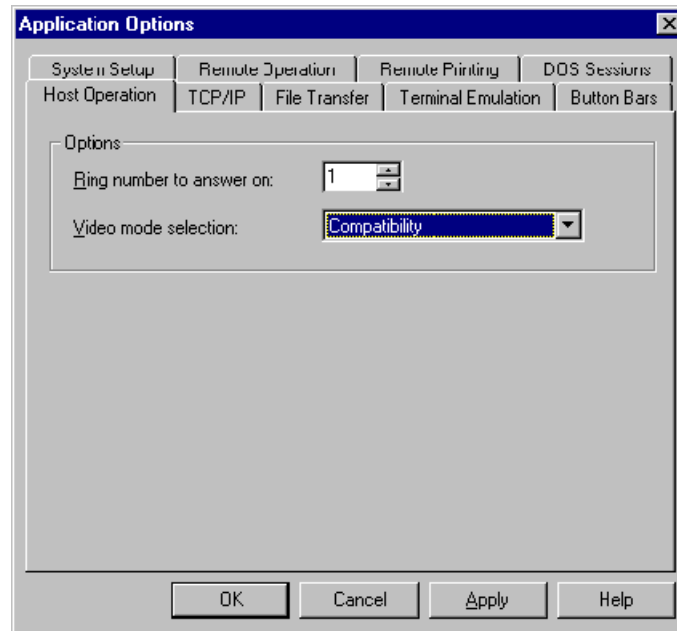
To set the video mode

- 1 On the File menu, click Application Options.

Result: The Location Information dialog box appears.



- 2 Select your country from the Country list.
- 3 Type your area code into the Area Code box.
- 4 Click Close.
Result: The Application Options dialog box appears.
- 5 Click the Host Operation tab.
Result: The Host Operation property page appears.



- 6 In the Video mode selection drop-down list, select Default—Accelerator Enabled, and then click Apply.
Note: If the Video mode selection is already defined as Default—Accelerator Enabled, the Apply button is dimmed. Click OK to close the window and go to step 8.
- 7 Click OK to close the window.
Result: The pcANYWHERE32 window appears.
- 8 To finish the installation, click File > Exit.
- 9 If you performed the installation from the CD-ROM drive, remove the CD-ROM from the drive.

To perform the pcANYWHERE32 patch installation

Note: The pcANYWHERE32 patches are located on the CallPilot Server CD-ROM in the following directory: platform\default\nortel\data\PCANYW_1.

- 1 Insert the CallPilot Server CD-ROM.

- 2 Install the 802up_a Patch.

Navigate to platform\default\nortel\data\PCANYW_1\802up_a\disk1, and then double-click the setup.exe icon.

Result: The Welcome window appears.

- 3 Click Next.

Result: The Start Copying Files window shows the path for copying files.

- 4 Click Next.

Result: Setup copies files to the directories, and then the Setup complete window appears.

- 5 Select No, I will restart my computer later, and then click Finish.

Note: Do not restart the computer. Continue with installing the next patch.

- 6 Install the 802up_b Patch.

Navigate to platform\default\nortel\data\PCANYW_1\802up_b, and then double-click setup.exe.

Result: The Welcome window appears.

- 7 Click Next.

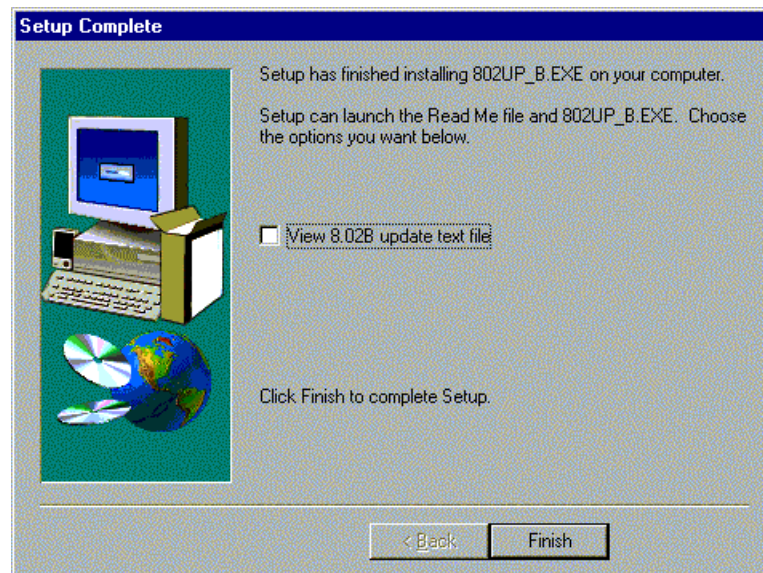
Result: The Start Copying Files window appears, showing the path for copying files.

- 8 Click Next.

Result: Setup copies files to the directories, and then the Setup Complete window appears.

- 9 Select No, I will restart my computer later.

- 10 If you see the following screen, ensure the check box is unchecked, and then click Finish:

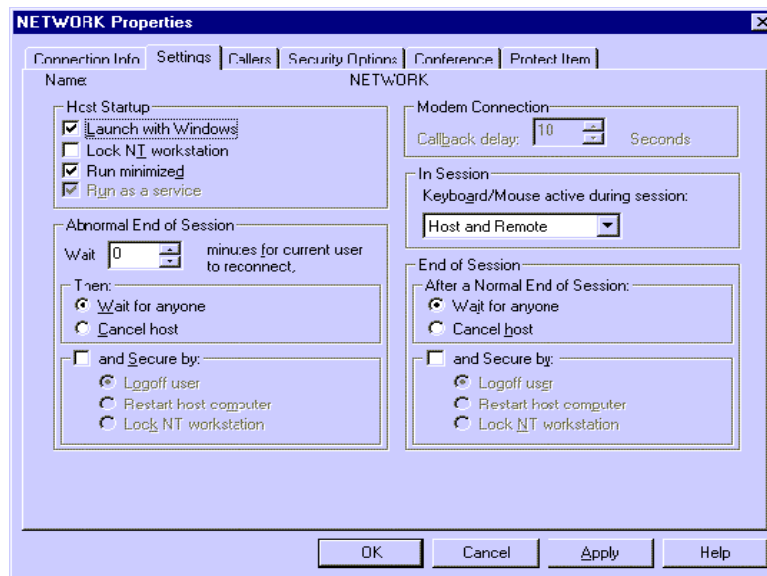


- 11 Restart the computer by clicking Start > Shutdown. Select Restart the Computer, and then click OK.

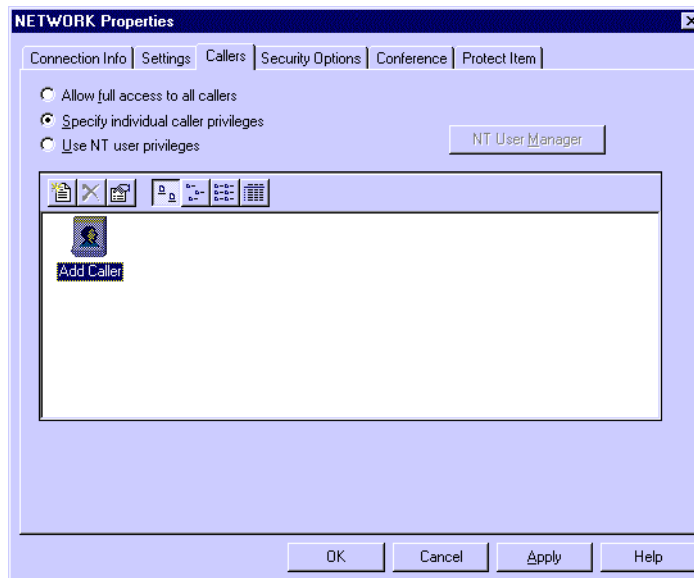
To configure pcANYWHERE32

- 1 Click Start > Programs > pcANYWHERE32 > pcANYWHERE.
- 2 Select Be a Host PC.
- 3 Right-click the Network icon, and then click Properties.
Result: The NETWORK Properties sheet appears.
- 4 Click the Connection Info tab.
- 5 Ensure that only TCP/IP is checked.

- 6 Click the Settings tab and select the Launch with Windows check box. Ensure that the settings are as shown in the following example:



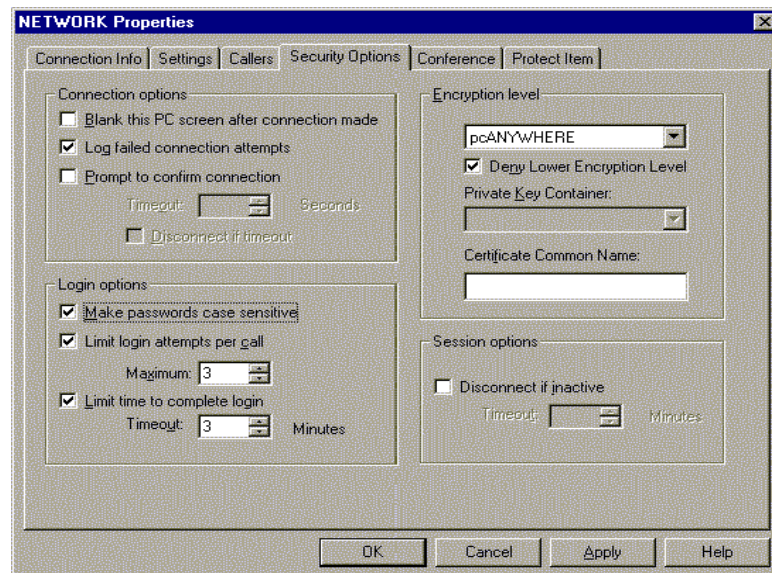
- 7 Click the Callers tab.
- 8 Click Specify individual caller privileges, as in the following example:



- 9 Double-click Add Caller.

Result: The New Caller Wizard window appears.

- 10 Type **CallPilotDist** and click Next.
 - 11 Type **CallPilotDist** for the logon name.
 - 12 In the Password box, type the new CallPilotDist password.
 - 13 In the Confirm Password box, retype the new CallPilotDist password.
 - 14 Click Next.
 - 15 Click Finish.
- Result:** The Network Properties sheet appears.
- 16 Click the Security Options tab and select the check boxes for the following entries:
 - Log failed connection attempts
 - Make passwords case-sensitive
 - Deny lower encryption level
 - 17 Ensure that the settings are as shown in the following example:



- 18 If you want to assign a password to control who can modify the Network icon settings, click the Protect Item tab, and then enter a password.
- 19 Click OK to apply all pcANYWHERE32 settings.

To set the pcANYWHERE32 service to Automatic

- 1 Click Start > Settings > Control Panel.
- 2 Double-click Services.
- 3 Scroll to pcANYWHERE Host Service, and highlight the service.
- 4 Click Startup.
Result: The Service dialog box appears.
- 5 In the Startup Type area, select Automatic.
- 6 Click OK.
- 7 Close the Services window, and exit the Control Panel.

What's next?

Install the CallPilot server software.

Installing CallPilot server software

Introduction

This section describes the steps required to install CallPilot software on a CallPilot server that is already loaded with the Windows NT 4.0 operating system and the device drivers required by CallPilot.

Requirements

To install the CallPilot server software, you need the following:

- CallPilot 1.07 Server CD-ROM
- CallPilot 1.07 PEP CD-ROM
- a server that is powered on, with Windows NT 4.0, Service Pack 5, and all the device drivers installed
- the current password for the Administrator account

Note: This password was set during the installation of Windows NT.

ATTENTION

During an installation, there are stages during which the setup program performs automatic installation steps between setup windows. Do not close any windows that appear during these steps unless you are prompted. Wait for the next wizard setup window before you use the mouse or keyboard.

To install the CallPilot server software

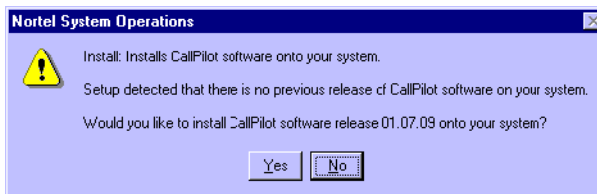
- 1 Insert the CallPilot 1.07 Server CD-ROM into the CD-ROM drive and launch Windows NT Explorer.
- 2 Click the CD-ROM drive, and then double-click setup to start the CallPilot installation.

Result: The Nortel System Operations window appears.



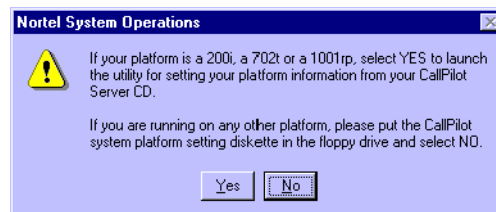
- 3 Click Next.

Result: You are asked to confirm the installation of CallPilot files onto your PC.



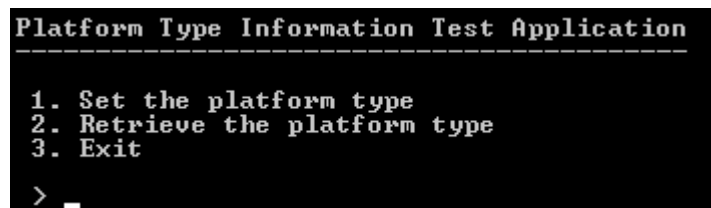
- 4 Click Yes.

Result: You are prompted to start the platform setting procedure.



- 5 Click Yes.

Result: The Platform Type Information Test Application window appears.



- 6 Type **1** to set the platform type, and then press Enter.

Result: The system prompts you to identify the machine class.

```
PLATFORM TYPE SET
-----
Select the machine class:
 1. TRP
 2. IPE
 3. Unknown
>
```

- 7 Type **2** for IPE.

Result: The system prompts you to identify the machine type.

```
Select the machine type:
 1. Tower
 2. Rack
 3. IPE
 4. Unknown
>
```

- 8 Type **3** for IPE.

Result: The system prompts you to identify the platform series.

```
Select the platform series:
 1. 200
 2. 300
 3. 700
 4. 701
 5. 702
 6. 1000
 7. 1001
 8. 1002
 9. Unknown
```

- 9 Type **1**, and then press Enter.

Result: The Select the backplane type prompt appears.

```
Select the backplane type:
 1. Active
 2. Passive
 3. Unknown
```

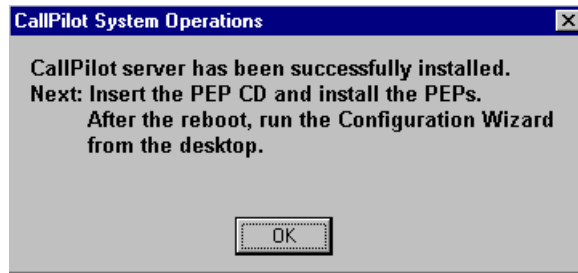
- 10 Type **1** for Active.

Result: The Nortel System Operations window appears and shows the current platform settings based on your responses.

- 11 If the settings are correct, click Yes to initiate the installation. Otherwise, click No to rerun the platform setting procedure.

Result: The installation setup process runs automatically (taking 15 to 30 minutes). A series of messages appears to indicate the items that are being installed (for example, backup/restore, MMFS).

When installation is complete, the following dialog box appears:



- 12 Click OK.
- 13 Remove the Server CD-ROM.

What's next?

If you have a PEP CD-ROM, install the PEPs.

Installing Performance Enhancement Packages

Introduction

For an initial installation of CallPilot, the Performance Enhancement Packages (PEPs) are provided on a CD-ROM.

If you are using this procedure for a CallPilot system that is up and running, new PEPs are issued on the Nortel Networks CallPilot web site at <http://www.nortelCallPilot.com>.



CAUTION

Risk of system problems

For specific PEP installation instructions, refer to the readme files that are in the PEP CD-ROM root directory and in the folder for each PEP package. In many cases, PEPs must be uninstalled and installed in a specific order. The readme files provide these instructions. When the readme files instruct you to uninstall or install PEPs, refer to the procedures in this section.

ATTENTION

If your CallPilot system is up and running, Nortel Networks recommends that you perform a system backup before you install a new PEP.

Refer to *Monitoring and Security for the Administrator* for more information on performing a backup.

Identifying the PEPs

The last character of the PEP name indicates the target platform for the PEP. For example, S indicates that the PEP is for the server.

Readme files

Readme files are provided in the following locations on the PEP CD-ROM:

- the root directory on the PEP CD-ROM
This readme file provides a general description of the PEP packages and general PEP install and uninstall instructions.
- in each PEP package folder
These readme files provide a list of all the PEPs in that package, and specific PEP install and uninstall instructions.

- in each PEP folder

These readme files describe the purpose of that PEP and might provide some PEP installation instruction.

To install a PEP package

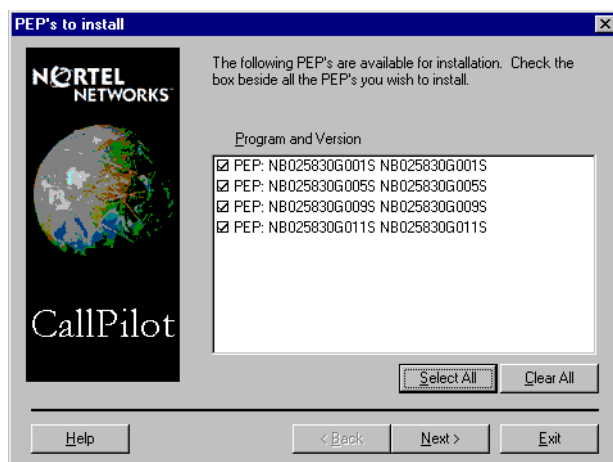
- 1 Ensure that you are logged on to the server on which you want to begin PEP installation.
Use a logon account that has administrative privileges (for example, administrator).
- 2 Insert the CallPilot 1.07 PEP CD-ROM.
- 3 Read the readme files that are in the PEP CD-ROM root directory and in the folder for each PEP package for specific uninstallation or installation instructions, or both.
- 4 Double-click runme.exe.

Result: Setup examines the system, and the PEPs to install window appears.

ATTENTION

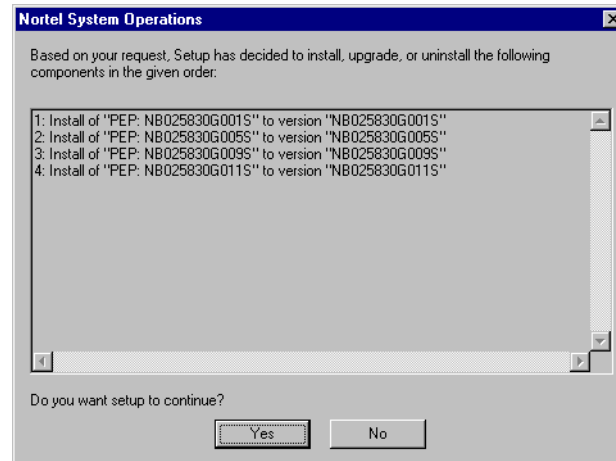
It can take 5 to 20 minutes for the PEPs to install window to appear, depending on the number of PEPs and the system configuration. In the meantime, a grey box might appear while the window is loading. Do not use the mouse or keyboard during this time.

Note: The following example is for illustration purposes only, and might not reflect what appears on your system:



- 5 Select the PEPs to install, and then click Next. If you are uncertain about which PEPs to install, refer to the Readme file located in the root directory of the CD-ROM.

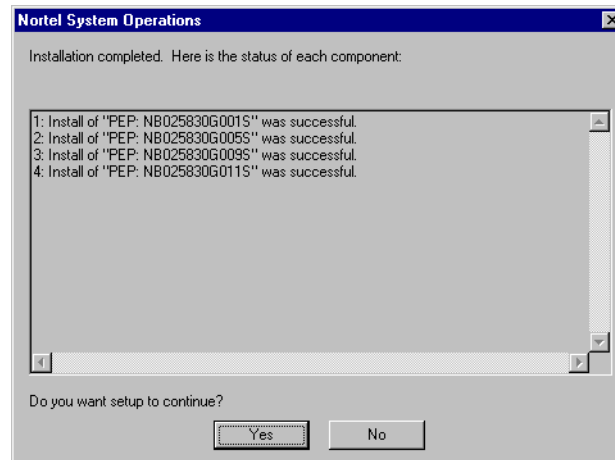
Result: The Nortel System Operations window appears and lists all components in the order in which they will be installed.



- 6 Click Yes to continue.

Result: The system automatically shuts down all services, and the PEPs are installed. CallPilot automatically removes obsolete PEPs when you install new PEPs.

A summary similar to the following example appears showing the success or failure of each PEP operation. The PEPs displayed might be different for your server:



- 7 Click Yes to complete the procedure.

Result: The program ends.

- 8 Repeat this procedure for other PEP packages. A reboot is not required after installing PEPs unless Setup prompts you to reboot.

What's next?

IF you are	THEN
installing a new CallPilot system	run the Configuration Wizard (see Part 3 of this binder).
recovering from a hard drive failure	continue with the steps in “Recovering from a hard drive failure” on page 145.

Chapter 9

Uninstalling CallPilot server software

In this chapter

Uninstalling CallPilot

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Uninstalling CallPilot

Introduction

Uninstallation of CallPilot removes the software completely from the server. It also removes all CallPilot registry entries, linguistic information, and all links to CallPilot from the server database.

ATTENTION

Once you start the uninstallation process, you cannot restore CallPilot if you decide to cancel the process. You must perform a reinstallation to load CallPilot onto the server.

Note: You cannot uninstall a specific language that has been installed.

What is removed during uninstallation of CallPilot

Uninstallation of CallPilot software removes the following files:

- CallPilot entries in the Windows NT Registry
- all CallPilot entries in the server database

Note: You cannot uninstall a specific language that has been installed.

Before you begin

Obtain the current password for the Administrator account.

To uninstall CallPilot server software

Note: This procedure is valid for Fresh Installed, Upgraded, or Converted Systems.

- 1 To uninstall CallPilot, click Start > Programs > CallPilot > Uninstall.
- 2 Click Yes to confirm uninstall.
- 3 After CallPilot has been successfully uninstalled, click Yes to restart.

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CallPilot

Installation and Configuration

Part 5: 201i Server Maintenance and Diagnostics

Toronto Information Products
Nortel Networks
522 University Avenue, 14th Floor
Toronto, Ontario, Canada
M5G 1W7

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